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FOREIGN EXCHANGE

THEORY AND PRACTICE

By

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TO

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PREFACE

Foreign exchange is attracting more attention than any other branch of finance. The interest evinced is universal and is no longer confined to bankers, international traders, and financial writers, as was the case prior to the Great War. The general public is showing a decided disposition to acquaint itself with the dislocation of the exchanges brought about by the conflict. Nor is this interest likely to suffer much abatement, since normal conditions will probably not be restored in international financial relations for a number of years to come.

The author's purpose in this book is to explain the operation of the exchanges between gold-standard countries under normal financial conditions. In a subsequent volume now in preparation he proposes to deal with the present irregular position of the exchanges, and with exchange between a gold- and a silver-standard country. It is quite impossible, however, to gain an adequate appreciation of the problem presented by the deranged condition of the exchanges unless their operation under the normal functioning of the commercial and financial machinery of the world is first thoroughly understood.

The subject of foreign exchange, even in its greatest refinements, offers comparatively little difficulty after the student has once mastered the meaning of the gold standard, or what constitutes money in a gold-standard country. The present volume, therefore, attempts to give in the introductory chapter a complete understanding of this fundamental principle of all finance.

A hypothetical method of treatment is followed in the theoretical part of the discussion. This approach has proved of great assistance to the writer in evolving the various principles laid down in the book, and will enable the reader to follow the course

of reasoning more closely. In the last few chapters the hypothetical assumptions are abolished and attention is given to practical foreign exchange operations as conducted in the New York market.

THOMAS YORK.

New York City,
January 1, 1920.

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FOREIGN EXCHANGE

CHAPTER I

THE FUNDAMENTAL THEORY OF FOREIGN EXCHANGE

Foreign Exchange Defined.—The expression "foreign exchange" refers to the exchange of money in one country for money in another. In the vast majority of cases the money exchanged is in the form of bank deposits. A merchant in New York who has contracted to settle in London for a bill of goods he has purchased on the other side, makes payment with a London bank deposit, which he secures in exchange for a portion of his bank deposit in New York. He goes to a foreign exchange banker who carries a bank deposit in London for the accommodation of customers like himself, and exchanges a check on his own bank for a check on a London bank, which he remits to the British seller.

But money, including bank deposits, in a gold-standard country consists, as we shall presently see, of gold, or claims upon the government or banks for delivery of gold upon demand. Payments effected by transfer of bank deposits are, therefore, equivalent to tenders of the metal at the banks. As the monetary systems of both the United States and England are normally on a gold-standard basis, a bank deposit in New York is equivalent to gold tendered in New York, while a bank deposit in London is equivalent to gold tendered in London.[1]

As conducted between two gold-standard countries, foreign exchange, therefore, consists essentially of the exchange of gold

[1] We are assuming conditions in England as they existed prior to the outbreak of the Great War, when the gold standard was effectively maintained there.

in the one for gold in the other. In lieu of actually shipping the metal to pay a debt in London, an American acquires by exchange its equivalent in London in the shape of a bank deposit. Thus, foreign exchange is, in effect, merely another method of transferring gold from one place to another.

Money the Medium of Exchange.—Why money in a gold-standard country is gold or its equivalent in the form of government and bank obligations to pay it on demand, requires for an answer a thorough-going exposition of the principles of the gold standard. In fact, without such exposition, it is almost futile to attempt an analysis of the laws governing foreign exchange operations.

Commodities and services are not, of course, exchanged directly, but through the medium of money. The farmer exchanges his crops for money, and then re-exchanges the money for the various articles he desires. Moreover, when he lends whatever surplus his land produces over and above his immediate needs, he advances, not the identical product of his soil, but the money he first obtains in exchange for it; and when the loan is repaid, it is, again, money he receives.

Thus money facilitates the general process of exchanging and lending commodities and services. As a natural corollary of this, money also serves as a common denominator for measuring the comparative exchangeability or value which a certain quantity of an article or a particular class of service possesses as regards other articles and services. In short, money is the common medium of exchange and standard of economic values.

Gold as a Standard of Values.—As the value of a commodity in the economic sense is merely the amount of another commodity it commands in exchange, it stands to reason that money itself must be a commodity. In practically all the important countries of the world the commodity adopted to fulfil the monetary func-

tion is the metal gold. Now, like many another commodity, gold is measured by weight, and its quantity, even when it is employed as money, can be indicated by the ordinary scales of weights—pounds and ounces, and grams and kilograms. But the various nations have seen fit to fix upon special systems of weights for measuring it when serving as money. In the United States the system consists: first of the standard unit—the dollar, weighing 23.22 grains; then of the eagle, weighing ten times the dollar; the dime, weighing $\frac{1}{10}$ of the dollar; the cent, weighing $\frac{1}{100}$ of the dollar; and the mill, weighing $\frac{1}{1000}$ of the dollar. In England the monetary system of weights is composed of the pound sterling, weighing 113 $\frac{1}{0\,2\,3}$ or 113.001 + grains; the shilling, weighing $\frac{1}{20}$ of the pound; the penny, weighing $\frac{1}{240}$ of the pound; and the farthing, weighing $\frac{1}{960}$ of the pound.

It must be carefully borne in mind, then, that the monetary units in a gold-standard country always refer to definite quantities of gold. Failure to appreciate this fact is responsible for most of the popular misconceptions regarding monetary questions. If, for example, it is said that a house is worth $1,000 the meaning is simply that it is exchangeable for 23,220 grains (1,000 × 23.22 grains), or 48$\frac{3}{8}$ troy ounces of gold.

Coining Gold.—Conceivably gold could perform its monetary function in whatever shapes and sizes it chanced to be. But in that case it would be necessary on every occasion of its transfer, from buyer to seller, or between lender and borrower, to verify its quantity by means of a pair of scales and a more or less elaborate metallurgical test. It is to obviate the need of such interminable weighings and testings that the metal is fashioned into stamped disks of regular shape, called "coins," which cannot be tampered with without detection, each of a standard weight as expressed by the monetary unit. But obviously, unless the coins are executed by some trustworthy agent who commands the absolute confidence of the general public, little would be gained by

their manufacture. It is only natural, then, that in modern communities the government, in whom the public reposes more trust than in private individuals or corporations, should be given the exclusive right to mint the coins.

Gold coined by the mint belongs to private parties and not to the government. The government merely proves and certifies the quantity of the gold by stamping the pieces into which it is divided, for anyone presenting it at the mint. That is the meaning of the statement that the coinage of gold is free and unlimited. In effect, the government puts the metal up into standardized packages, each bearing the government's seal, and thereby endows the metal with ready acceptability in hand-to-hand circulation.

The metal is never coined pure, but a certain proportion of base metal alloy, usually one-tenth or one-twelfth of the gross weight, is mixed with it to render it harder and reduce the loss from wear and tear. In ordinary transactions, however, the alloy is completely ignored, only the pure gold content being considered. Gold coins of the United States contain copper alloy in the proportion of one part of copper to nine parts of gold, which makes the gross weight of the dollar 25.8 grains ($\frac{10}{9} \times 23.22$). Governments either mint the coins gratuitously or exact a fee by retaining a portion of the bullion. The United States Government charges only for the cost of the alloy, not for the service of coining.

What the Gold Standard Really Is.—In a country possessing the absolute gold standard, the very fact that the monetary unit always refers to gold makes every contract in that country stipulating the payment of a certain number of monetary units, payable in gold and in gold only, if the payee so requires. Did the monetary system of the United States, for example, conform strictly with the principle of the gold standard, every promise to pay a certain number of dollars, no matter how evidenced,

whether by an engraved note, or an ordinary note of hand, a bond or mortgage, a bank deposit or a book account, would constitute an obligation to deliver to the creditor, on the due date and at the place specified, a definite quantity of gold? In short, when the gold standard is adopted in its entirety, gold only, in the coined form, is a full legal tender.

But it by no means follows that gold coin will be the sole medium of exchange under the operation of the unqualified gold standard. On the contrary, creditors will ordinarily waive their right to the coin, and consent to receive in place of it the more convenient promises to pay gold on demand of third parties, whose unquestioned good faith and ability to perform their engagements render their obligations as acceptable as the metal itself. Nowadays the only agencies which are able to issue demand obligations that will circulate on a strict parity with gold are governments and banks. The promises of governments are evidenced by silver and base metal coins, commonly referred to as "subsidiary coins," and by engraved paper notes. Similar obligations of the banks are represented by engraved paper notes and so-called "checking deposits," which are nothing more nor less than book accounts, any portion of which can be transferred by the banks' creditors, the depositors, to any other persons, usually by means of a formal written order on the bank—the familiar check.

The Status of Subsidiary Coins.—It is a striking commentary on the widespread ignorance of monetary principles that governments the world over should fail to recognize their liability on their outstanding subsidiary coins. Far from making such acknowledgment, they actually consider the difference between the so-called nominal value of the coins (in reality the amount of gold due on them) and the cost in gold of their metal content as a profit derived from coining them. Value is here unwittingly regarded as being created by means of the stamping press. A

better example of the fallacious doctrine of fiat money could hardly be found. The fact is that subsidiary coins are but metallic promissory notes of the issuing government, and should formally be acknowledged as such. To be sure, since the metal they are made of has an appreciable value, particularly in the case of the silver pieces, the government's net indebtedness on its outstanding subsidiary coins is equal to the difference between the amount of gold it owes on them and the current gold value of their metal content, which the government would acquire again were it to redeem the coins.

Two Elements of Money.—Money, in a country rigidly adhering to the gold-standard principle, is thus composed of two elements —gold, and the several classes of government and bank promises to pay the metal on demand.[2] So long as the government and the banks maintain their ability to meet, without demur or delay, whatever obligations are presented for payment, it is obvious that their creditors are virtually owners of gold entrusted to them for safekeeping. Hence, payments made with these obligations are equivalent to transfers of titles to gold stored in the government treasury, or in this or that bank. Purchase of goods with these promises, for example, consists, to all intents and purposes, of the exchange of the goods for gold lodged in the vaults of the government treasury or some bank.

Because they are more convenient to handle than gold coins,

[2] The bank deposit is commonly differentiated from the other forms of money which are called "cash," because of the greater formality connected with its transfer. As the check, which represents the portion of the bank deposit about to be transferred, is not in itself a direct evidence of the bank's liability, every last holder must guarantee by his indorsement that it will be honored by the bank. On the other hand subsidiary coins, government notes, and bank notes are evidences of direct liability on the part of the government and banks, and on that account circulate as freely as gold coin itself, passing from hand to hand by the mere act of delivery. The issuance of these forms of money is more strictly controlled by law than the creation of bank deposits, but such regulation is no essential part of the gold-standard principle.

the demand promises of the government and banks are preferred by the public, and constitute in consequence the great bulk of a country's circulating medium. The gold coins are turned over to the government and the banks in exchange for their obligations, and are held in reserve by them for the purpose of meeting promptly whatever obligations are presented for redemption. By this means the gold parity of the great mass of outstanding obligations is maintained. As a rule, the gold reserves need represent but a fraction of the volume of obligations in circulation, as owing to their high credit the government and banks are seldom called upon to pay gold to creditors. In the ordinary course of events the government's obligations are only retired when they are turned in for taxes, or on the comparatively infrequent occasions when gold is desired for export or use in the arts. They are renewed when the government purchases supplies or pays the salaries of its employees. The obligations of the banks are being continuously liquidated as borrowers surrender them in discharge of debts owed to the banks, and are put out again as the banks extend new loans.

High Development of Monetary Credit System.—This system of monetary credit is carried even to a higher point of development. Instead of gold the banks hold as reserves against their liabilities the obligations of the government or of a central bank, or of both, which their creditors will ordinarily accept in full satisfaction of their claims. In their daily settlements with each other, the banks use, as the most convenient medium of payment, deposits in the central bank, while in paying off individual creditors they use the government's obligations in the form of notes and subsidiary coins, or the central bank's obligations in the form of notes.

In this manner practically the entire stock of gold in the country is concentrated in two large reservoirs, the government treasury and the central bank, which constitute the basis for the

vast superstructure of credit, consisting of the obligations, first, of the government and central bank, and then of the ordinary run of banks. But it is to be remembered that under the operation of the complete gold standard the obligations of the banks are still equivalent to gold tendered at their offices, since their creditors may still demand payment in gold over the counter. When required to make such delivery, the banks draw upon the gold supplies in the hands of the government and the central bank by presenting the latter's obligations for redemption.

Analysis of a Foreign Exchange Transaction.—Having established the fact that bank deposits in a gold-standard country are equivalent to gold, we are prepared to resume our discussion of foreign exchange. It is to be observed in the first place that international settlements are usually effected by means of bank deposits. Whether payment is made against the purchase of merchandise, services, or securities, or by way of advancing or liquidating a loan, or paying interest thereon, or on any other account, the payer in the one country transfers to the payee in the other the stipulated amount of bank deposits in a particular city. A check is drawn on the bank, or a cablegram is sent directing the bank to make the transfer. As a general rule the banks whose obligations are thus employed in making international payments are the larger institutions located in the financial center of the one or the other country. Between the United States and England, for instance, settlement is usually made by the transfer of a deposit in either a London or a New York bank.

Taking the example of a payment from the United States to England, it makes a difference to the American payer and to the British payee whether the payment is to be made in London or in New York, and they accordingly settle the point in their contract. The American payer has his bank deposit, let us say, in New York. If he contracts to pay in London, he must secure the required amount of deposits in a London bank. To all intents

and purposes, then, he owns a stock of gold warehoused in a New York bank, but has agreed to deliver a certain amount in London. As has already been learned he has two methods available for making the transfer. He can withdraw the necessary quantity of gold from his New York bank and ship it to London; or he can exchange a portion of his New York deposit, which we may refer to as "New York gold," for the needed amount of London deposits, which we may call "London gold," with one who desires to make the reverse exchange. (Usually only foreign exchange bankers ship the metal. But for our present purposes we shall assume that our American payer is in a position to make consignments.)

As noted in the next chapter, the rate at which the American payer can effect the exchange is not a fixed and unchanging proportion, but varies with the state of competition prevailing among all performing similar exchanges. He may surrender a greater or less amount of his New York gold than he will obtain of London gold. But even though he should suffer a loss on the exchange, it will still advantage him to resort to exchange rather than shipment, if the loss should be less than the cost of shipping the metal, as it usually is. Thus in contracting to make payment in London he must take into account the current rate of exchange, or the expense of transporting gold, if shipment happens to be cheaper than exchange, in order to learn what the payment will amount to in terms of New York gold.

On the other hand, if payment in New York is agreed on, it will devolve upon the British payee, who naturally wants his money at home, say, in London, either to ship gold or exchange the New York gold he receives for London gold, with one who is willing to make the opposite exchange. Here again, he will have recourse to shipment only in the event that it is cheaper than exchange. As he will compute his receipts by the amount he will net in London, he must take into consideration, when agreeing upon the conditions of payment, the rate at which he can accom-

plish the exchange, or, if shipment is cheaper, the cost of transporting gold to London.

An Illustrative Transaction.—As a concrete illustration of the way in which a foreign exchange transaction is executed, let us take the case of a New York merchant who contracts to purchase a bill of goods from a Sheffield manufacturer for £1,000, or 113,001 grains (1,000 × 113.001) of gold delivered in London. It is evident that in consequence of the terms of payment he is required either to ship the above amount of gold to London, or to secure by exchange that amount of London deposits.

Suppose a foreign exchange banker agrees to make the exchange with him at the rate of $4.87 per £1, or 113.0814 grains (4.87 × 23.22) of New York deposits for 113.001 grains of London deposits. On this basis the New York merchant will part with a total of 113,081.4 grains of his New York deposit, and receive a total of 113,001 grains of London deposits. He will, accordingly, suffer a loss of 80.4 grains on the exchange. But if this loss is less than it would cost him to ship 113,001 grains of gold to London, he will consent to make the exchange, which will be executed as follows: He will turn over to the foreign exchange banker a check on his bank for $4,870, or 113,081.4 grains, and receive from him a check on his London correspondent bank for £1,000, or 113,001 grains, which he will forward to the Sheffield manufacturer.

Naturally the New York merchant reckons the cost of his merchandise purchase, not at the invoice amount of 113,001 grains of London gold, but at the 113,081.4 grains of New York gold he gives up on the exchange. In negotiating the purchase, therefore, he has regard to the prevailing rate of exchange.

Different Types of Foreign Exchange Transactions.—Essentially consisting of the exchange of two lots of gold located in different countries, foreign exchange transactions divide them-

selves into several classes each based on the time of the two deliveries. While the contracts for the exchanges are entered into in the present, they may stipulate simultaneous delivery of the two lots now or at some specified future time; or they may call for the delivery of the domestic lot in the present or a stated future date, and the foreign lot at some subsequent time. Thus in all cases, except where the two deliveries are simultaneous and immediate, the element of time, and consequently the factor of interest, figures in the transactions. The rates at which two lots of gold exchange in the case of these various types of exchange must needs, therefore, differ. But we shall learn, that they tend to mutual equivalence, if proper allowance is made, through the factor of interest, for the variation in the time of the two deliveries. In the chapters to follow our task will be mainly to examine each of these classes of exchange, and to define the relation which their respective rates bear each other when in that position of parity.

Hypothetical Method of Treatment Followed.—In the first part of our treatise, which will be given over to an analysis of the principles underlying foreign exchange transactions, we shall assume certain conditions not experienced in actual practice. Such hypothetical mode of treating the subject will greatly simplify our labor without in the least detracting from the value of our conclusions. After we have by this means mastered the laws of foreign exchange, we shall pass to a consideration of exchange dealings as they are actually conducted between New York and London. Throughout, however, our discussion will relate solely to conditions as they prevailed prior to the Great War, as only the normal functioning of the exchanges between gold-standard countries falls within the scope of this volume.

To begin with, we shall assume that both the United States and England are on an effective gold-standard basis, and that in consequence no question can be raised with regard to the equivalence of New York and London bank deposits to gold. To keep

constantly before our minds the essential fact that foreign exchange in the last analysis is gold exchange between two gold-standard countries, we shall refer to exchange between the two cities as the exchange of New York gold for London gold, and vice versa, though it will be understood that the subjects of exchange are in reality bank deposits in those cities.

Secondly, in place of the dollar in the United States and the pound sterling in England, we shall substitute the troy ounce of 480 grains, customarily used by jewelers and other dealers in the precious metals. Under this supposition gold coins in both countries will weigh one or more ounces, or fraction of an ounce, and all values will, accordingly, be expressed in so many ounces or grains of pure gold, instead of in so many dollars and cents, or so many pounds, shillings, and pence.

By employing a standard unit common to both countries, we shall avoid the confusion inevitably following upon any attempt to compare the weights of two lots of gold that are measured by different units. The advantage of the troy ounce over one of the regular monetary units lies in the fact that it cannot be taken for anything but what it really is, namely, a unit of weight. For it is most essential in connection with the study of foreign exchange that the concept of weight be constantly associated with whatever monetary unit is used. The dollar or the pound sterling would not serve our purpose so well, owing to the vague notions generally entertained with regard to their nature. It is doubtful if any amount of reiteration that they are but units of weight especially used in measuring gold when employed as money, would break the average reader of the ingrained habit of regarding them as something totally different, indefinite as that might be.

Finally, we shall eliminate, in the hypothetical part of our discussion, the foreign exchange banker, who is but a middleman, and assume that the principals to every exchange transaction come into direct touch with each other. By dispensing with this middleman we shall strip exchange dealings of their unimportant

details and be able to concentrate our attention entirely on their essential features. Omitting the banker, however, renders necessary the further supposition that the exchangers have agents in the foreign city to attend in their behalf to the delivery or receipt of gold there, and to other matters connected with the execution of the exchanges.

CHAPTER II

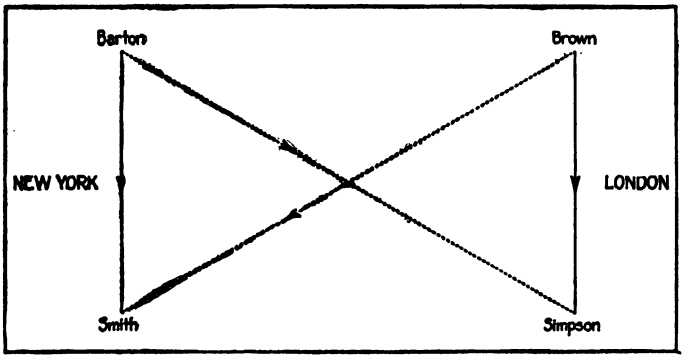
SPOT CABLE EXCHANGE

Spot Cable Exchange Defined.—Of the several varieties of gold exchanging as based on the relative time of the two deliveries in New York and London, that described as "spot cable exchange" or "the spot cable transfer" is the simplest. Owing its name to the fact that the transmission of the order for the delivery of gold in London is by cablegram, this type of exchange differs from the other types in that the two deliveries are simultaneous and immediate, or at least not later than the time required to dispatch a cablegram to the British center. Thus each party to an exchange of this sort no sooner parts with gold in one place than he comes into possession of gold in the other place, so that there is no element of interest involved in the transaction, as we shall see there is in the case of the other forms of exchange. For this reason spot cable exchange is not inaptly characterized as "pure exchange."

A Simple Case.—The accompanying diagram illustrates the mutual relationship of the four parties figuring in a simple spot cable transaction. The dotted lines connect the creditors with their respective debtors, while the solid lines show the direction in which gold changes hands in New York and London.

Suppose Barton of New York purchases from Simpson of London a quantity of wool for 960 ounces of gold, which he contracts to deliver at once in London; and suppose, further, that Smith of New York has just sold a consignment of wheat to Brown of London, and is paid immediately 960 ounces in the British capital. A situation is created as a result of these two transactions in which, of the two parties residing in New York,

Barton has gold in New York but is called upon to deliver a certain amount in London, while Smith has gold in London but wants it transferred to New York. It is obvious that by exchanging their respective holdings, they will save each other the cost and trouble of shipping the metal, provided, of course, they can agree upon a mutually satisfactory rate.



Let us say that after a certain amount of bargaining Smith consents to turn over to Barton the 960 ounces he has in London for 958 ounces that Barton agrees to pay him in New York, which is presumably the rate at which others are at the same time arranging similar exchanges. Both parties thereupon proceed to carry out their contracts as follows: Barton delivers to Smith 958 ounces in New York, while Smith cables his debtor, Brown, in London to deliver to Simpson for Barton's account, the 960 ounces owing him. Thus within a few hours the exchange of the two lots of gold is completed and the necessity of making two cross-shipments avoided. Owing to the competitive conditions prevailing among the exchangers in New York, Smith loses and Barton gains 2 ounces on the exchange. But Smith is perfectly satisfied with the bargain, as it is to be supposed that a physical transfer of his gold from London would have cost him more than the amount of this loss. Besides, he took the loss fully into

account when he decided to sell his wheat for 960 ounces of London gold.

Technical Expressions.—At this point it is advisable to explain some of the technical expressions commonly employed in connection with exchange dealings, particularly as they will prove useful in our own discussion. To begin with, an exchange operation is customarily viewed as an ordinary purchase and sale, in which the local gold is regarded as the purchase money and the foreign gold as the commodity. To designate this "commodity" in respect to the time and place of its delivery, the word "exchange" (less commonly "funds" or "currency") is used in conjunction with a phrase describing the particular type of exchange that is referred to, and the name of the city in which the commodity is located. In the illustration above, for example, Smith is looked upon as selling Barton 960 ounces of spot cable exchange on London,[1] for which Barton is said to pay him 958 ounces. The act of exchange is not infrequently alluded to as a "conversion." New York funds are said to be converted into London funds, and vice versa. Then, too, the purchaser of London exchange, Barton, in our example, is represented as "sending" or "remitting funds" to London, while the seller of London exchange, Smith in our example, is described as "withdrawing funds" from London.

Two Methods of Quoting Exchange.—Another matter which requires most careful attention at this early stage of our inquiry relates to the twofold manner in which the rate of exchange may be indicated. One of the commonest causes of confusion on the general subject of foreign exchange is the failure to apprehend and to observe consistently the distinction between these two methods of expressing the rate. In the case of either method, the

[1] Care should be taken to avoid confusing the word "exchange" in this narrow technical sense with its ordinary meaning of a reciprocal act.

rate of exchange denotes the ratio in which a quantity of gold in one city is exchanged for the standard unit in the other city. But according to the one system, which hereafter will be designated as the "first method of quotation," the rate indicates the amount of domestic gold which is given in exchange for the standard weight of foreign gold. In the illustration we cited, for example, the rate at which Barton and Smith perform their exchange is denoted by the ratio of 479 grains of New York gold to 480 grains of London gold, which may be expressed in the fractional form, thus,

$$\frac{\text{479 grains of New York gold}}{\text{480 grains of London gold}}.$$

But it is obvious that when this mode of quoting the rate is in universal use in any center, it is only necessary to express the amount of domestic gold given in exchange, that is, the numerator or upper term of the ratio, as the quantity of foreign gold received, that is, the denominator or lower term of the ratio, is understood to be 480 grains. The rate quoted above would ordinarily be expressed by the single figure 479 grains. In short, when the first system of quotation is employed, the rate of exchange is expressed in terms of domestic gold.

The rate, which is also called the "price of exchange," fluctuates in response to changes in the relation of the demand and supply of exchange. It advances in answer to an urgent demand for foreign gold, and declines as the supply increases in the foreign gold offerings. When the rate is the standard unit of 480 grains, it is said to be "at par," for it then indicates that New York gold is exchanging for London gold on equal terms, 480 grains of the one for 480 grains of the other. When the rate rises above par, say, to 481 grains (481 grains of New York gold against 480 grains of London gold), London exchange is declared to be "at a premium" of 1 grain. On the other hand, when the rate declines below the par level to 479 grains (479 grains of New York gold

against 480 grains of London gold), London exchange is referred to as selling "at a discount" of 1 grain.

Quoting the rate in this manner conforms to the way in which the values of commodities in general are expressed, since the figure denoting the rate indicates the price paid for a fixed quantity of the commodity, or foreign gold. Largely on this account it is the method most commonly employed, and is in fact the one applied to London exchange in New York.

For reasons which will be apparent in the next chapter, the rate of exchange between some countries is expressed in the reverse manner, that is, in terms of foreign gold. According to this method, which we shall refer to as the "second system of quotation," the rate signifies the quantity of foreign gold that is exchangeable for the standard weight of domestic gold. If, for instance, this mode of quoting the rate were used in New York in relation to London exchange, a "rate of 481 grains" would be understood to mean that 481 grains of London gold exchanged for 480 grains of New York gold. Expressing the rate in this manner is precisely analogous to a system by which the value of an ordinary commodity would be indicated by stating the amount which could be purchased for $1. For example, the price of wheat might be given as $\frac{1}{2}$ bushel, with the understanding that $\frac{1}{2}$ bushel could be purchased for a dollar.

Under the second system of quoting the rate, the higher the figure expressing it advances, the more exchange can be purchased for 480 grains of local gold, and therefore, the cheaper it is; and conversely, the lower the figure declines, the less exchange can be bought for 480 grains of local gold, and the dearer it is. Accordingly, as the figure rises above the par of 480 grains, the price of exchange really falls to a discount, since 480 grains of exchange can be obtained for less than 480 grains of local gold; contrariwise, when the figure declines below the par of 480 grains, the price of exchange in reality goes to a premium, since 480

grains of exchange now command more than 480 grains of local gold.[2]

Demand and Supply of Exchange.—Whether a person can sell his London exchange at a premium or at par, or is obliged to dispose of it at a discount, will naturally depend upon the state of competition prevailing at the moment among all the exchangers. The exchange of gold between New York and London is a two-ended affair, however, exchanges being executed in London as well as in New York; for in some transactions between Americans and Englishmen settlement is made by the delivery of gold in New York, and the latter have occasion, therefore, to negotiate exchanges in London. It will be found more convenient, however, to deal for the present only with the New York end of this dual system of exchange. We shall accordingly assume in this chapter that payments between the two cities are made exclusively in London gold, and thus confine the exchange market to New York;

[2] The premium and discount on the price of exchange always refer to domestic gold, inasmuch as they represent the difference between the standard weight of 480 grains of foreign gold, and the quantity of domestic gold it commands in exchange. Accordingly, if the rate is expressed in foreign gold, it is necessary to translate it into terms of local gold to ascertain the amount of its premium or discount. If, for instance, the rate for London exchange in New York were given as 479 grains of London gold, its premium would amount to $1\frac{1}{4}\frac{1}{8}$ grains, which is the difference between the equivalent quotation of $481\frac{1}{4}\frac{1}{8}$ grains of New York gold,

$$\frac{481\frac{1}{4}\frac{1}{8}}{480} = \frac{480}{479}$$

and the par of 480 grains. The percentage of the premium or discount is found by taking the difference between the quoted figure and the par of 480 grains, and dividing this difference by whichever of the two refers to foreign gold—by par, if the first system of quotation is used, and by the quoted figure, if the second system is employed. In the foregoing example, the premium amounts approximately to .2%,

i.e., $$\frac{480 - 479}{479} = .002+.$$

for it is obvious that if Englishmen receive and make payment to Americans invariably in London gold, they will have no occasion to exchange London gold for New York gold, or conversely.

Various Classes of Exchangers.—Ranged, so to speak, on the one side of this New York market are all who, like Barton in our example (see page 14), are in possession of New York gold which they want to exchange for London gold, in order to effect payment in the British city, provided the loss they will sustain on the exchange, if any, will not be in excess of the cost of shipping the required amount of the metal. These intending exchangers represent the current demand for London exchange. They may be classified under the following five heads:

1. Those who must settle in London for merchandise, services, or securities they have purchased abroad.
2. Those who have maturing loans, interest, or dividends to pay in London to British creditors or shareholders in American companies.
3. Capitalists desiring to advance loans in London.
4. Those about to visit England, who must provide themselves with London gold to defray the expenses of their sojourn abroad.
5. The miscellaneous group, embracing all other remitters, who are forwarding funds to friends and relatives, or on other minor accounts.

Turning now to the other side of the exchange market, we have those whose position is similar to that occupied by Smith in our illustration. On one account or another they are in receipt of London gold, which they desire to transfer to New York, preferably by sale of exchange, if that method is cheaper than the actual importation of the metal. Their offerings constitute the current supply of exchange, and they may be divided into the

following five classes, corresponding to the five classes on the demand side of the market:

1. Those who have been paid in London for merchandise, services, and securities they have sold on the other side.
2. Those who have received payments in London on account of dividends, interest, or loans fallen due.
3. Those who have obtained loans in London and desire to transfer the proceeds to New York.
4. Travelers and other visitors from England who require funds on this side for spending purposes.
5. All others who are in possession of comparatively small amounts of London gold, which they have received from friends and relatives on the other side, or on sundry other accounts.

The Exchange Rate at a Premium.—In the very nature of the case, against every sale of London exchange there must needs be a corresponding purchase. Still, at any given time the bidding for exchange may exceed the amount just then on offer. In other words, New York gold may be offered for exchange in greater volume than London gold. This happens when the inter-city payments are running on balance in favor of London. Purchases of merchandise made abroad by American merchants may be increasing relatively to their foreign sales; or American capitalists may have been induced by a relative advance in the interest yield on London loans to enlarge their advances to British borrowers; or again, the period may be at hand when American debtors are obliged to make a considerable volume of payments to their British creditors. Any one or several of these and the other demand items may overbalance the corresponding items in the supply list, and cause the prevailing demand for exchange to outrun the total supply available at the moment. Under those circumstances to attract additional offerings of London gold,

would-be buyers of exchange are compelled to mark up their prices until a sufficient supply is forthcoming to take care of their requirements. If the bidding is aggressive enough, the rate of exchange will sooner or later be driven to a premium above the par of 480 grains, the amount of which will measure the additional quantity of New York gold that must be given in exchange for 480 grains of London gold to bring into the market the volume of London gold offerings needed to match the existing demand. As the rate continues upward, it assumes a position increasingly adverse to New York and favorable to London, since its advance indicates a steady depreciation of New York gold with respect to London gold and renders more imminent the loss of gold by New York to London through exportation.

Sources of Exchange Supplies.—What are the likely sources of the additional supplies of London exchange necessary to balance the increasing demand? To begin with, the rising premium on the rate is bound to stimulate the sale of American merchandise to British buyers, since in consequence of its advance American merchants stand to realize larger amounts of New York gold on their foreign sales. Greater supplies of exchange come upon the market, therefore, from this quarter. At the same time the advancing rate increases the cost of British goods in terms of New York gold to American buyers, and tends to curtail their purchases, with the result that their buying of exchange falls off.

Certain speculative transactions in exchange, induced by a rise in the rate, also contribute to the equalization of the demand and supply. While in the long run they are not as powerful in their effect as the factor described in the preceding paragraph, they respond more quickly to alterations in the rate. In the first place, there are always some persons in New York in possession of London gold who have deferred converting it into New York gold in anticipation of obtaining a higher rate for it. When the hoped-for advance materializes, they sell their exchange, and

thus add to the total supply. On the other hand, there are others with remittances to make to London who, when an advance occurs in the rate, postpone their purchases of exchange as long as they can, in the hopes that the rate will in the meantime decline. Their temporary withdrawal from the market serves to diminish for the time being the demand for exchange.

Then, too, a big advance in the rate will be taken by some as affording an opportunity for a profitable speculation on a possible future decline in the rate. They will either sell exchange against loans contracted in London and lend the funds out in New York, or sell exchange for future delivery in a manner to be explained in Chapter IV. If the rate declines when they are obliged to remit to London against the maturity of their obligations, they will have realized a profit on the operation.

The Exchange Rate at a Discount.—To pass now to the opposite situation, when the demand for London exchange begins to subside, the course of the rate is reversed and the premium gradually declines, since intending sellers are now forced to lower their offering prices to dispose of their supplies. If this tendency continues, the premium in time disappears entirely as the rate touches par, which quotation will attest the fact that the intercity payments are equalized at the moment. If the balance of payments turns definitely in favor of New York and the supply of exchange exceeds the demand, the quotation drops to a discount below par. On its downward course the rate moves in favor of New York and against London, since it registers a steady appreciation of New York gold as regards London gold, and enhances the possibility of a movement of the metal setting in from London to New York.

The additional demand necessary to balance the growing supply emanates from sources which are the exact counterparts of those from which proceed the extra supplies needed to match an increasing demand. As the declining rate means lower prices in

New York gold on all purchases and sales of merchandise between the United States and England, purchases from England will increase and engender a stronger demand for exchange, while sales to England will fall off and result in a contraction in offerings of exchange. The lower rate will also encourage immediate buying of exchange by those who have settlements to make in London in the near future, while it will tend to check immediate selling, as some intending sellers will prefer to wait for a possible recovery in the rate.

Lastly, the drop in the rate may occasion a demand from some who are bent on speculating on a future advance in the quotation. They will purchase exchange with money borrowed in New York and loan out the funds in the London market. Subsequently, when their advances mature, they will recall their funds by selling exchange, and at the same time retire their borrowings in New York. They may also speculate by purchasing exchange for future delivery. In either case, if the exchange rate advances in the interval, their speculation will have yielded them a profit.

The Gold Export Point of the Spot Cable Rate.—As has been repeatedly remarked, shipment is substituted for exchange in the transfer of funds between the two centers when the loss on the latter exceeds the cost of consigning the metal. From this it may at once be inferred that the rate cannot draw away from par indefinitely in either direction. As a matter of fact, its fluctuations are normally restricted to a narrow range extending above and below par, the limits of which are fixed approximately by the cost of shipment, including a certain interest loss. These limits are known by the names of "gold export point" and "gold import point," or by the single designation of "specie points," which covers them both. We have, therefore, to ascertain the manner in which these points are determined under a given set of conditions.

The Upper Limit.—Let us first fix our attention on the upper limit, the gold export point. When the rate of exchange is ruling at a premium, it is adverse to the buyer of exchange, as he is obliged to surrender a greater amount of gold in New York than he obtains in London. If, for example, the rate is 481 grains[3] he loses a grain on every 480 grains he gets in London. And as the rate advances and the premium increases, his loss grows correspondingly greater. Eventually, if the rate continues to rise, it reaches a level at which the purchase of exchange is as expensive as the shipment of gold. The point at which these two ways of remitting to London exactly balance is the gold export point. The moment the rate passes beyond this point, shipment becomes cheaper than the purchase of exchange and tends to displace it as a means of remitting to London. The resulting decline in the demand for exchange prevents any further advance in the rate. The actual limit of the rate's advance is, then, just beyond the export point. If we, therefore, define the position of the export point, we shall have approximately determined the maximum distance the rate can move above par.

A Sample Case.—To this end let us take a concrete example. Suppose the rate for spot cables is 482 grains, and ten days are required to ship and lay down gold in London, which period of time we shall hereafter allude to as the "shipping period." Suppose, further, that the London interest rate is 4% per annum, or, on the basis of 360 days to the year, at the flat rate of $\frac{1}{90}$ for the shipping period. Assume now that a person in New York has a debt to pay immediately in London. If he purchases a spot cable at the rate of 482 grains, it will obviously cost him an extra 2 grains of New York gold to discharge 480 grains of his debt.

He will first stop to figure, however, whether he will not do better by shipping gold. Inasmuch as his consignment will not

[3] Unless expressly stated to the contrary, it will be understood that the first system of quotation is used in all the illustrations to follow.

arrive in London until 10 days after his obligation is due, he will obviously have to borrow in London for the interval, in case he makes a shipment. The interest he will pay on every 480 grains of the loan will amount to $\frac{8}{1\,6}$ of a grain ($\frac{1}{9\,0\,0}$ of 480); and as it will not be offset by any interest accrual on the gold while in transit, he will have to set it down for a total loss. To meet the loan at maturity, he must, therefore, ship $480\frac{8}{1\,6}$ grains for every 480 grains he borrows. Thus, in addition to sustaining a loss of interest at the London rate on 480 grains for the shipping period, he will be obliged to bear the expense of shipping 480 grains, plus the above amount of interest. Suppose this transportation cost, which includes such items as freight, marine insurance, packing, and cartage, amounts to $1\frac{7}{1\,6}$ grains, so that when added to the interest loss it exactly equals 2 grains. In that event, he will have to devote 482 grains of his New York gold to the payment of 480 grains of his maturing London debt. His conclusion is, therefore, that gold shipment is precisely as expensive as the purchase of exchange. Hence 482 grains is the gold export rate at the moment for spot cable transfers.

Calculating the Gold Export Point.—We may lay down the general proposition, then, that the spot cable rate is at the gold export point when the premium on it is equal to the sum of the interest at the London rate on the par of 480 grains for the shipping period, and the expense of shipping a quantity of gold amounting to 480 grains, plus the aforementioned amount of interest. To reduce this formula to an algebraic expression, if p represents the gold export premium, I the London rate of interest for the shipping period, and e the number of grains it costs to ship 480 grains to London, p equals $(480 \times I) + e(1 + I)$. Furthermore, since $(480 \times I) + e(1 + I)$ equals $e + I(480 + e)$, the gold export premium is also equal to the expense of shipping 480 grains to London, plus interest at the London rate for the shipping period on the sum of par and the above transportation cost.

Finally, the gold export rate, or $(480 + p)$, being equal to $(480 + e) + I(480 + e)$, is, therefore, equal to $(480 + e)(1 + I)$, that is, to the sum of par and the cost of shipping 480 grains, plus interest on this sum at the London rate for the shipping period.

Varying Gold Export Points.—The transportation charges and interest loss on gold consignments vary, however, with different individuals. Each has, therefore, his own gold export point. But the actual limit of the exchange rate's advance is determined by the export point of those who can ship to and borrow in London most cheaply. They are usually bankers in the enjoyment of first-class credit with London banks and possessing special facilities for shipping on a large scale. Inasmuch as their export point is the lowest, they can begin to ship when it is still unprofitable for others to do so. In fact, they have a monopoly of the exporting, as their consignments are large enough to prevent the rate from exceeding the export points of other remitters. For, by offsetting their consignments with sales of exchange, as is usually their practice, they can ship indefinitely, regardless of whether they have any obligations to meet in London or not, so long as the rate remains above their export point. Such operations are in reality arbitrage transactions, being undertaken simply for the profit they offer. Thus a banker sells spot cables against a loan he obtains in London, and out of the proceeds consigns enough gold to cover the loan at maturity. If his export point at the moment is 482 grains and he markets the cables at the rate of $482\frac{1}{4}$ grains, he makes a profit of $\frac{1}{4}$ of a grain of New York gold on every 480 grains of cables he sells. The increased supply of exchange resulting from such sales by arbitrageurs keeps the rate below the export point of other less favorably placed remitters, who continue to purchase exchange.

The Gold Import Point of the Spot Cable Rate.—The gold import point for spot cables marks the maximum discount to

which the rate can under normal conditions decline. When the rate is quoted under par, it is unfavorable to sellers of exchange, since the amount of gold they then obtain in New York is less than the quantity they give up in London. If, for example, the rate is 479 grains, they lose a grain on every 480 grains of exchange they sell; and as the rate is marked down farther, their loss increases correspondingly. If the quotation keeps on receding, it eventually touches the gold import point, when the loss on the sale of exchange becomes precisely equal to the cost, including the loss of interest, of bringing gold over from London. Thereafter, any further drop in the rate renders importation the more advantageous method of withdrawing funds from London, and shipment is consequently substituted for the sale of exchange. The resulting reduction in the supply of exchange prevents any further decline in the rate, which remains just far enough below the import point to induce gold importation.

To determine the position of the gold import rate, let us take the case of a person in New York who is in possession of gold in London, but has immediate need of it in New York, say, to pay a maturing debt. Assume that 478 grains is the exchange rate, 10 days are required to ship gold from London, and the interest rate in New York is 6% per annum, or $\frac{1}{600}$ for the importing period. If he effects the transfer of his gold by sale of exchange, he sustains a loss of 2 grains on every 480 grains he surrenders in London, as he gets only 478 grains in New York. On the other hand, if he orders the gold to be shipped, he must anticipate its arrival by contracting a loan in New York for the amount of his debt. Interest on every 478 grains of the loan at the flat rate of $\frac{1}{600}$ will amount to $\frac{239}{300}$ of a grain, which will be a complete loss to the shipper, as the gold in transit will yield him no interest return to offset it. He is, therefore, obliged to import $478\frac{239}{300}$ grains against every 478 grains he borrows. If the expense of importing this amount of the metal is $1\frac{61}{300}$ grains of London gold, so that the total cost, including the interest loss, will amount to exactly

2 grains, gold importation is at parity with the sale of exchange at 478 grains, which rate is accordingly the gold import point.

Calculating the Gold Import Point.—The spot cable rate is thus at the gold import point when its discount is equal to the interest at the New York rate on the exchange quotation for the importing period, plus the expense of importing a quantity of gold amounting to the sum of the quotation and the above mentioned amount of interest. To express this in algebraic form, if q denotes the gold import rate, i the flat rate of interest in New York for the importing period, and E the cost of importing 480 grains, the discount on the gold import rate, or $(480 - q)$, equals

$$(i \times q) + \frac{E \times q(1 + i)}{480}.$$

As this latter expression in turn equals

$$\frac{(q \times E)}{480} + i(q + \frac{q \times E}{480}),$$

the gold import discount may also be given as amounting to the expense of importing a quantity of gold equal to the gold import quotation, plus interest at the New York rate for the importing period on the sum of the quotation and the above transportation expense. Finally, since $(480 - q)$ equals

$$\frac{(q \times E)}{480} + i(q + \frac{q \times E}{480}),$$

q equals

$$\frac{480^2}{(480 + E)\ (1 + i)}.$$

That is to say, the gold import rate equals the square of the par of 480 grains divided by the following quantity: the sum of par and expense of importing 480 grains, plus interest on this sum at the New York rate for the importing period.

As in the case of gold exportation, it is only bankers who can ordinarily import the metal to advantage. Inasmuch as they incur the least expense and interest loss on shipments, their import point is the highest, and they can, therefore, bring in the metal when it is still unprofitable for others to do so. Their importations do not, as a rule, represent the withdrawal of funds from London, but are undertaken in conjunction with offsetting purchases of exchange with the object of reaping the difference between the import point and the current exchange quotation. The exchange is bought with loans contracted in New York, which are paid off on the arrival of the gold from London. The increased demand for exchange caused by the arbitrage operations tends to hold the rate above the gold import points of others, who find it more advantageous to sell exchange in withdrawing funds from London.

Both Specie Points Variable.—We have thus fixed the approximate limits, above and below par, between which the movements of the spot cable rate are confined. Within this range the rate swings up and down in answer to the changing conditions of demand and supply. But obviously, since these specie points are determined by variable factors, they must needs be variable themselves. The expense of shipping in normal times seldom changes to any appreciable extent. But interest rates in London and New York are subject to frequent fluctuations, which cause corresponding shifts in the specie points. Moreover, the time necessary to ship gold from one center to the other varies with the speed of the steamers and, accordingly, the positions of the specie points also change with this factor. In short, the specie points draw away from the par of 480 grains as the expense of carriage, the interest rate in the center to which shipment is contemplated, and the length of the transportation period increase; and draw nearer to par as these factors decrease.

Minor Factors Affecting the Specie Points.—To avoid encumbering the illustrations with too much detail, certain minor points were omitted. Briefly summarized, these points are as follows:

1. No distinction was made in our illustrations between gold coin and gold bullion, but every piece of the metal, in whatever form it appeared, was assumed to be of exactly the weight it purported to be, and as acceptable as any other of equal weight. But in practice coins become abraded from current use in circulation, and unless the loss exceeds the limit prescribed by law, creditors in the country of their issue are compelled to accept them as though they had their full original weight. But abroad, such coins as a rule are taken only at their actual weight. A loss is, therefore, sustained in exporting them which, for all practical purposes, may be looked upon as an added expense of shipment.

2. In the importing country, the gold coin or bullion may be sold (exchanged for promises of banks in the form of deposits to pay gold on demand) at a slight discount, which represents the interest the buyers demand for the few days the metal is unavailable while it is being minted into coins of the realm. Again, such loss may be regarded as increasing the transportation cost.

3. The metal must be secured a few days in advance of the day of consignment in order to prepare it for shipment, and its delivery in the other center is usually delayed a few days while it is weighed and assayed. Account may be taken of both these brief periods by merely regarding them as extending the total period of shipment and increasing the interest loss.

Specie Points When Rates Are Expressed in Foreign Gold.—We have yet to discuss the calculation of the specie points under the second system of quotation. From the equation

$$\frac{\text{482 grains of New York gold}}{\text{480 grains of London gold}} = \frac{\text{480 grains of New York gold}}{\text{478}\frac{2}{3}\frac{2}{4}\text{1 grains of London gold}}$$

it is evident that when the gold export rate, quoted in terms of New York gold, is 482 grains, its equivalent rate in terms of London gold is $478\frac{9}{41}$ grains. Accordingly, the figure denoting the export rate under the second system of quotation is below the par of 480 grains. Now, precisely in the way in which it was shown that the premium of the gold export rate expressed in New York gold is equal to the shipping expense on 480 grains, plus interest at the London rate for the shipping period on the sum of par and this expense, it can be demonstrated that the difference between par and the export rate expressed in London gold is equal to the cost of shipping an amount of gold equal to the export rate, plus interest at the London rate for the shipping period on the sum of the export rate and the transportation charges.[4] Under both systems of quotation, then, the calculation of the export rate is based on the term of the ratio of exchange which refers to London gold, on par in the one case and on the quoted figure in the other.

Turning now to the gold import rate; if it is 478 grains when referring to New York gold, it is $482\frac{9}{89}$ grains when referring to London gold, since the ratio

$$\frac{\text{478 grains of New York gold}}{\text{480 grains of London gold}}$$

is equal to the ratio

$$\frac{\text{480 grains of New York gold}}{482\frac{9}{89}\text{ grains of London gold}}.$$

From this it is apparent that the figure indicating the gold import rate under the second system of quotation stands above par. By

[4] Inasmuch as the gold export rate expressed in terms of New York gold is $(480 + e)(1 + I)$ grains (see page 27), it is $\frac{480^2}{(480 + e)(1 + I)}$ grains when expressed in terms of London gold, as

$$\frac{(480 + e)(1 + I)}{480} = \frac{480}{\frac{480^2}{(480 + e)(1 + I)}}$$

the same method by which the formula for the gold import discount under the first system of quotation was computed, it can be demonstrated that the difference between the gold import rate and par under the second system of quotation is equal to the expense of shipping 480 grains, plus interest at the New York rate for the shipping period on the sum of par and the shipping charges.[5] In the case of the gold import rate, the basis of calculation is the term of the ratio of exchange which refers to New York gold, the quoted figure under the first system of quotation, and par under the second system of quotation.

[5] As the gold import rate expressed in New York gold equals $\frac{480^2}{(480+E)(1+i)}$ grains (see page 29), it is equal to $(480+E)(1+i)$ grains when expressed in London gold, since

$$\frac{\frac{480^2}{(480+E)(1+i)}}{480} = \frac{480}{(480+E)(1+i)}$$

CHAPTER III

THE DUAL SYSTEM OF EXCHANGE

An Exchange Market in Both Cities.—There are no two cities in the world of any standing as financial centers which settle the mutual transactions of their respective countries exclusively by the delivery of gold in one of them, as has been assumed in the preceding chapter. On the contrary, in every instance the one city in some transactions, and the other city in other transactions, is selected as the place of delivery. As has already been pointed out, the question of where the gold is to be tendered in payment is in every case decided between the two parties concerned. It follows that people in both countries have occasion to exchange with each other gold in the one city for gold in the other. There is thus in operation between the two places what may be characterized as a dual system of gold exchange. This system is analyzed in the present chapter so far as the spot cable transfer is concerned.

As between New York and London, payment in the great proportion of cases is stipulated in the latter city, and the bulk of the gold exchanging between these cities is, accordingly, arranged in New York, between those who are paid in London and those who have undertaken delivery there. Still, the number of intercity settlements made by the delivery of gold in New York is not inconsiderable in the aggregate, and there is a corresponding volume of gold exchanges taking place in London, between those who are in receipt of gold in New York and those who have engaged to pay it there.

Unity of the Two Markets.—Whether the exchange transactions are entered into in the one or the other city, they are identi-

cal in nature, for in both cases the things exchanged are respectively the same, namely, gold in New York and gold in London. Moreover, the two cities practically constitute a single exchange market, for by means of cable communication Americans are able to contract exchanges in London and Englishmen to contract exchanges in New York, with almost the same facility, and with no appreciably greater expense where the amounts are large, as in their respective home markets. Indeed, the big exchangers in each city, the foreign exchange bankers, make it a practice to keep themselves constantly informed by cable on the rate of exchange prevailing in the other city, and to accomplish their exchanges in the market which offers the more attractive rate. As will shortly be seen, this constant readiness to take advantage of any existing difference between the rates in the two centers has a tendency to obliterate the discrepancy and virtually to merge the markets into one. Nor need the exchangers be residents of either America or Great Britain. On the contrary, they may be located in any quarter of the globe and still be able to effect the exchange of New York gold for London gold almost as easily as though they were present in person in the one or the other city, if they are in immediate touch with either center by cable.

Two Distinct Viewpoints.—Although the exchanges are identical in nature, the two cities regard them from opposite viewpoints. This difference of viewpoint, coupled with a possible difference in the manner of quoting rates in the two places, is one of the commonest causes of mental confusion on the general subject of foreign exchange. As already remarked, it is a universal custom growing out of a perfectly natural propensity for each city to look upon domestic gold, given or received in exchange, as the price that is paid, and the foreign gold as the commodity that is purchased. Accordingly, while in New York, London gold is regarded as the commodity or "exchange," and New York gold the price, in London, New York gold is regarded as the com-

modity, or "exchange," and London gold the price. The exchange of New York gold for London gold is, therefore, viewed as a purchase of London exchange when negotiated in New York, and as a sale of New York exchange when negotiated in London; and vice versa, the exchange of London gold for New York gold is looked upon as a sale of London exchange when contracted in New York, and a purchase of New York exchange when contracted in London.[1] From this it is apparent that the purchase of London exchange in New York is identical with the sale of New York exchange in London; and the sale of London exchange in New York is identical with the purchase of New York exchange in London.

Manner of Quoting Rates.—As regards the manner of quoting rates in the two centers, we have already alluded to the fact that it is the usual practice in the various financial centers of the world to express rates of exchange in terms of domestic gold, or in accordance with what we have elected to call the first system of quotation. While this is the method actually applied to London exchange in New York, in London the opposite mode is used, the rates for New York exchange being denoted in terms of New York gold, i.e., according to the second system of quotation. We shall assume in the theoretical part of our discussion, however, the use of the first system of quotation in London as well as in New York, except when we give special attention to the second system.

Assuming, then, that the rates in both cities are expressed in domestic gold, it is clear that the figures by which they are indi-

[1] London and New York exchange are referred to, with even greater frequency, as "sterling" and "dollar exchange" respectively, terms borrowed from the names of the monetary units employed in the two countries. But in view of our assumption of a hypothetical unit common to both countries, it is better to postpone the use of these expressions to the last three chapters, where we shall deal with the actual units employed.

cated refer to different things, to New York gold in the case of the New York rate, and to London gold in the case of the London rate. The quotations are, therefore, bound to differ even though the ratios they represent may be exactly equal. To illustrate, if the rate in New York for spot cable transfers on London is 481 grains, or expressed in full,

$$\frac{\text{481 grains of New York gold}}{\text{480 grains of London gold}},$$

the equivalent rate in London for spot cables on New York is $479\frac{1}{81}$ grains, as the ratio it represents, namely,

$$\frac{\text{480 grains of New York gold}}{479\frac{1}{81}\text{ grains of London gold}},$$

is equal to the ratio of exchange in New York.

When the spot cable rates in the two centers are mutually equivalent, they are said to be "at parity" with each other, and the par of 480 grains is the mean proportional of the figures expressing them. In this relative position they are quoted one at a premium and the other at a discount. The premium in the one case is merely the converse of the discount in the other, although it bears a slightly higher proportion to par than the discount does.

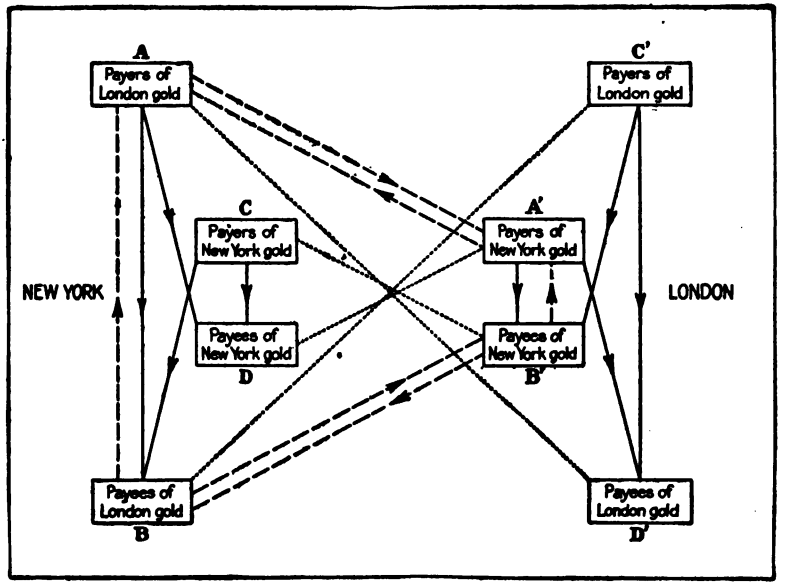
Exchanges Between People of Different Countries.—The greater part of the exchanges in the two cities are negotiated between residents of their respective countries. In New York the exchanges are performed mostly between Americans, and in London between Englishmen. But, as noted above, cable communication between the two cities renders possible the negotiation of exchange in either place, between Americans on the one hand and Englishmen on the other. Thus, an American desiring to effect an exchange of New York gold for London gold can cable an order to his London agent to sell New York exchange on his behalf; or

if he wants to make the reverse exchange, of London gold for New York gold, he can direct his agent to purchase New York exchange. In the same manner an Englishman can execute an exchange of London gold for New York gold by cabling his agent in New York to sell London exchange for his account; or if he wishes to exchange New York gold for London gold, he can instruct his agent to purchase London exchange.

The particular market which exchangers in either city will select for contracting their trades will naturally depend upon the relative position of the rates in both. If parity prevails between the quotations, they will perform their exchanges at home, as they have then nothing to gain by resorting respectively to the foreign market. Americans will buy and sell London exchange to each other in New York, and Englishmen will buy and sell New York exchange to each other in London. But when a difference arises between the rates, in consequence of which London gold is cheaper in London than in New York, and, conversely, New York gold is cheaper in New York than in London, some Americans (foreign exchange bankers), who are aware of the disparity and possess the requisite facilities for taking quick advantage of it, will remit to London by selling New York exchange in London rather than by buying London exchange in New York; and at the same time some Englishmen (foreign exchange bankers) will remit to New York by selling London exchange in New York instead of buying New York exchange in London. On the other hand, when the rates exhibit the reverse disparity, whereby London gold is dearer in London than in New York, and vice versa, New York gold is dearer in New York than in London, some Americans will withdraw their funds from London by purchasing New York exchange in London instead of selling London exchange in New York, while some Englishmen will withdraw their funds from New York by buying London exchange in New York in lieu of selling New York exchange in London. But this exchanging between residents of different countries, when the

rates are unequal, is self-terminating, since, as we shall presently see, it tends to equalize the rates and remove the cause which gives rise to it.

Graphic Illustration of the Two Exchange Markets.—Before passing to an examination of the tendency of the rates to make for mutual parity, we shall study for a moment the accompanying



diagram, representing the relationships between the various classes of persons in the two cities who directly or indirectly figure in the exchanges. A thorough acquaintance with the diagram will enable us to visualize more fully the simultaneous operation of both exchange markets, and to have a better appreciation of the manner in which they are correlated and tend virtually to become one. The four rectangles on each side of the figure are self-explanatory. They represent the several groups of persons in each city who in one capacity or another take part in the exchanges. The rela-

tionships between payers of the one center and payees of the other are indicated by the dotted lines. Those who actually enter into exchange dealings with each other, either in the same city or between the two cities, are connected by the broken lines, the arrow-heads of which indicate the direction in which exchange is sold. The solid lines represent the direction in which gold changes hands at both centers in consequence of the exchanges.

Let us first examine the operation of the New York market so far as the exchanges conducted between Americans are concerned. *A* payers of New York have engaged to deliver gold in London to *D'* payees of London. Concurrently *B* payees of New York are acquiring gold in London from *C'* payers of London. *A* and *B* thereupon exchange their respective gold holdings in New York and London at the existing market rate. The transactions are completed when *A* deliver gold to *B* in New York, and *C'*, in accordance with advices cabled by *B*, deliver gold in London to *D'* for account of *A*.

Turning now to the London market, we may trace the exchanges negotiated between Englishmen as follows: *A'* payers of London are under obligation to deliver New York gold to *D* payees of New York, while *B'* payees of London are in receipt of New York gold from *C* payers of New York. *A'* and *B'* contract with each other for the exchange of their London gold and New York gold respectively. In carrying out their engagements, *A'* deliver gold in London to *B'*, while the latter cable *C* to deliver the gold owing them in New York to *D* for account of *A'*.

Assume now that the rates in the two cities are at disparity, so that London gold is cheaper in London than in New York, and conversely, New York gold is cheaper in New York than in London. Under these conditions some *A* payers of New York, who are in a position to avail themselves of the more attractive rate in London, will sell New York exchange in that city to *A'* payers, instead of buying London exchange in New York from *B* payees. The exchanges are consummated when *A* deliver gold in New

York to *D* in behalf of *A'*, and *A'* deliver gold in London to *D'* in behalf of *A*. Similarly, some of *A'* payers of London will take advantage of the more favorable rate in New York by selling London exchange in that city to *A* payers, in lieu of buying New York exchange in London from *B'* payees. The contracts are executed when *A'* deliver gold in London to *D'* payees for account of *A*, and *A* deliver gold in New York to *D* payees for account of *A'*. On the other hand, *B* payees of New York and *B'* payees of London find it to their advantage, in view of the existing position of the rates, to transact their exchanges in their home markets, by selling respectively London and New York exchange.

In the opposite case of disparity between the rates, when New York gold is dearer in New York than in London, and, vice versa, when London gold is dearer in London than in New York, some *B* payees of New York will purchase New York exchange in London from *B'* payees, instead of selling London exchange in New York to *A* payers. They will instruct *C'* payers of London to deliver for their account gold in London to *B'* payees, who in their turn will order *C* payers of New York to deliver for their account gold in New York to *B* payees. At the same time some *B'* payees of London will purchase London exchange in New York from *B* payees, instead of selling New York exchange in London to *A'* payers. They will order *C* payers of New York to deliver for their account gold in New York to *B* payees, who on their part will direct *C'* payers of London to deliver in their behalf gold in London to *B'* payees. As for *A* payers of New York and *A'* payers of London, it is to their interest under the prevailing rate situation to confine their exchanges to their respective home markets, for *A* to buy London exchange in New York and for *A'* to buy New York exchange in London.

The Tendency of the Spot Cable Rates in the Two Centers to Balance.—In analyzing the constant tendency of the spot cable rates in the two centers to make for mutual equality, we shall

assume concrete cases of disparity and show how in each instance forces automatically come into play to bring the rates together. Let us first take the case where London gold is cheaper in London than in New York, and, vice versa, where New York gold is cheaper in New York than in London. Suppose that when the rate for London spot cables in New York is 481 grains (of New York gold), or expressed in full

$$\frac{\text{481 grains of New York gold}}{\text{480 grains of London gold}},$$

the rate for New York spot cables in London is $479\frac{1}{2}$ grains (of London gold), or the ratio

$$\frac{\text{480 grains of New York gold}}{479\frac{1}{2}\text{ grains of London gold}}.$$

To render these ratios comparable it is obviously necessary either to reduce the second to the denominator of the first and thus ascertain the amount of New York gold which 480 grains of London gold is exchangeable for in London, or to reduce the first ratio to the numerator or upper term of the second, and arrive at the amount of London gold that 480 grains of New York gold will fetch in New York. Taking first the former basis of comparison, inasmuch as the London ratio is equivalent to

$$\frac{480\frac{480}{959}\text{ grains of New York gold}}{\text{480 grains of London gold}},$$

i.e.,

$$\frac{480}{479\frac{1}{2}} = \frac{480\frac{480}{959}}{480},$$

it is evident that while in New York, 480 grains of London gold will bring 481 grains of New York gold, in London the same amount of London gold will bring only $480\frac{480}{959}$ grains of New York gold. The two rates of exchange are accordingly unequal,

and exchangers of London gold stand to obtain for 480 grains of it, $\frac{479}{960}$ of a grain more of New York gold by selling London exchange in New York than by purchasing New York exchange in London. In the technical language of foreign exchange dealers, the $480\frac{480}{960}$ grains of New York gold which 480 grains of London gold will fetch in London is the "parity" of the prevailing London rate of $479\frac{1}{2}$ grains (of London gold). The disparity in the rates is, therefore, one in which the New York rate is above the "parity" of the London rate.

Another Example.—Turning now to the other basis of comparison, or the amount of London gold which 480 grains of New York gold exchanges for in each market, since the New York ratio is equivalent to

$$\frac{\text{480 grains of New York gold}}{479\frac{1}{481} \text{ grains of London gold}},$$

i.e.,

$$\frac{481}{480} = \frac{480}{479\frac{1}{481}},$$

480 grains of New York gold will accordingly exchange for $479\frac{1}{481}$ grains of London gold in the New York market, as against $479\frac{1}{2}$ grains of London gold in the London market. Hence, exchangers of New York gold will receive for 480 grains of it $\frac{479}{960}$ of a grain more of London gold if they sell New York exchange in London than if they purchase London exchange in New York. It will be observed that the current London rate is above the parity of the New York rate, or $479\frac{1}{481}$ grains, so that the disparity of the two rates is one in which they are each above the parity of the other.

To glance at the diagram again, with the two rates in the position of disparity we are assuming, *A* payers of New York, as exchangers of New York gold, will fare better if they sell New York cables in London than if they purchase London cables at home, while *A'* payers of London, as exchangers of London gold, will

obtain better results if they sell London cables in New York than if they buy New York cables in London. But, in the very nature of the case, not all of A and A' can thus resort to each others' market. As a matter of actual experience, the number of those who thus perform their exchanges abroad is restricted to a few bankers, who have the requisite facilities for the purpose. The general run of A and A' payers remain at home and constitute the source of demand for exchange in their respective markets.

The Effect of Disparity of Exchange Rates.—The existence of the disparity has also the effect of inducing some in both cities to exchange London gold for New York gold in New York, and immediately to re-exchange the New York gold for London gold in London, as the execution of such mutually offsetting exchanges yields them a profit amounting to the difference between the rates. Thus, if they sell at the same time 480 grains of London cables in New York for 481 grains of New York gold, and $480\frac{480}{959}$ grains of New York cables in London for 480 grains of London gold, the two exchanges completely balance each other so far as gold in London is concerned, while in New York there is an excess remaining amounting to $\frac{479}{959}$ of a grain, or the difference between the current rate of 481 grains and the London parity of $480\frac{480}{959}$ grains. On the other hand, if 480 grains of New York cables are sold in London for $479\frac{1}{2}$ grains of London gold, and at the same time $479\frac{1}{481}$ grains of London cables are sold in New York for 480 grains of New York gold, the two exchanges cancel each other absolutely as regards gold in New York, while in London a difference is left equal to the prevailing rate of $479\frac{1}{2}$ grains less the New York parity of $479\frac{1}{481}$ grains, or $\frac{479}{962}$ of a grain. Operations of this sort are in reality a form of arbitraging, and we shall refer to them as such, although usage among exchange dealers limits the term generally to transactions of a similar nature conducted between three or more centers, which we shall discuss in Chapter VII.

From the above illustrations it is clear that when the spot cable rates in the two markets are at disparity, each above the parity of the other, offerings of New York gold are diverted from New York to London, and of London gold, from London to New York. In other words, the demand for London exchange in New York, and for New York exchange in London, decreases, while the supply in each case increases. As a result of this readjustment the rates in both centers decline, and in so doing they approach equality. When they attain the parity relation, as they eventually will, the volume of New York gold offerings will bear the same relation to the volume of the London gold offerings in both cities; that is to say, the relation of the demand and supply of London exchange in New York will be exactly the reverse of that between the demand and supply of New York exchange in London.

Spot Cable Rates in Two Centers, Each below Parity of Other.—The opposite case of disparity between the spot cable rates in the two cities now claims our attention, that is, when London gold is dearer in London than in New York, and, conversely, when New York gold is dearer in New York than in London. A situation of this sort obtains when the quotation for London cables in New York is 481 grains (of New York gold), or the ratio

$$\frac{\text{481 grains of New York gold}}{\text{480 grains of London gold}},$$

and the rate for New York cables in London is $478\frac{1}{2}$ grains (of London gold), or the ratio

$$\frac{\text{480 grains of New York gold}}{\text{}478\frac{1}{2}\text{ grains of London gold}}.$$

If to compare these ratios we reduce the latter to the denominator of the New York ratio, making it

$$\frac{481\frac{16}{31}\frac{1}{9} \text{ grains of New York gold}}{480 \text{ grains of London gold}},$$

i.e.,
$$\frac{480}{478\frac{1}{2}} = \frac{481\frac{16}{31}\frac{1}{9}}{480},$$

it becomes apparent at once that for 480 grains of London gold $\frac{16}{31}\frac{1}{9}$ of a grain more of New York gold can be obtained by purchasing New York cables in London than by selling London cables in New York. It will be observed that in the case of this sort of disparity the New York rate is below the London parity, which in the example above is $481\frac{16}{31}\frac{1}{9}$ grains.

If the comparison of the ratios is made by reducing the New York ratio to the numerator or upper term of the London ratio, making it

$$\frac{480 \text{ grains of New York gold}}{479\frac{1}{481} \text{ grains of London gold}},$$

i.e.,
$$\frac{481}{480} = \frac{480}{479\frac{1}{481}},$$

it immediately becomes evident that for 480 grains of New York gold $\frac{8}{961}$ of a grain more of London gold can be procured if London cables are purchased in New York than if New York cables are sold in London. The London rate, it will be noticed, is below the New York parity of $479\frac{1}{481}$ grains. Hence the disparity is one in which the rates in both centers are each below the parity of the other.

Referring again to the diagram, it is readily seen that under the assumed relation of the rates it is more advantageous for *B* payees of New York to purchase New York cables in London than to sell London cables in New York; and for *B'* payees of London to purchase London cables in New York than to sell New York cables in London. Here again, it is only a few bankers who are ordinarily in a position to avail themselves of the more ad-

vantageous rate in the foreign market. The general rank and file of B and B' payees will execute their trades in their respective home markets and furnish the supply of exchange.

Under this rate disparity also there is an opportunity for profitable arbitraging between the two cities, that is, for the simultaneous exchange of New York gold for London gold in New York, and of London gold for New York gold in London. By purchasing 480 grains of London cables in New York for 481 grains, and $481\frac{1}{3}\frac{6}{1}\frac{1}{9}$ grains of New York cables in London for 480 grains, the arbitrageur makes a profit of $\frac{1}{3}\frac{6}{1}\frac{1}{9}$ of a grain of New York gold, or the difference between the London parity of $481\frac{1}{3}\frac{6}{1}\frac{1}{9}$ grains and the New York rate of 481 grains. Or if he buys 480 grains of New York cables in London for $478\frac{1}{3}$ grains, and $479\frac{1}{481}$ grains of London cables in New York for 480 grains, he realizes $\frac{4}{9}\frac{8}{6}\frac{3}{2}$ of a grain of London gold, or the New York parity of $479\frac{1}{481}$ grains minus the London rate of $478\frac{1}{3}$ grains.

Effect of Rates below Parity.—It is clear, then, that when the rates are each below the parity of the other, offerings of New York gold are attracted from London to New York, and of London gold from New York to London; that is to say, the demand for London cables in New York rises, while the supply falls off; and concurrently, the demand for New York cables in London increases, while the supply diminishes. The rates in both centers therefore, advance; and as they do so, they draw toward mutual parity.

The proposition is, therefore, established that the rates for spot cable transfers in the two centers tend ever to equality with each other. Any departure from this parity relation immediately sets into operation forces which tend to even them up.

Further Observations on Parity Relations.—The promptness with which the spot cable rates tend to adjust themselves to parity depends upon the size and frequency of the exchanges currently transacted between the two cities. Where dealings are

on a limited scale and the markets narrow, quoted prices do not represent, except remotely, the rates at which exchange in any quantity can actually be bought or sold. The instability of the rates is, therefore, hardly calculated to encourage arbitraging, or to persuade A and A' payers, when the rates are each above the parity of the other, or B and B' payees, when the rates are each below the parity of the other, to perform exchanges with one another. In those circumstances, instead of moving in close sympathy with each other, the rates will act more or less independently, approximating parity only in a remote degree. But, as between New York and London, the exchange business is conducted on such an enormous scale that their markets, particularly the one in New York, permit of any normal volume of buying and selling without undue fluctuation of the rates, and conditions are, therefore, favorable for the effective maintenance of the parity of the quotations.

Plainly, the common ratio in which New York gold tends to exchange for London gold in both markets is determined solely by the relation of the volume of payments made in the one direction to the total made in the other direction. In what proportions the gold deliveries are divided between the two cities has in reality no bearing on the rate, but merely represents to what extent exchanges are performed by Americans on the one hand, and by Englishmen on the other. Most of the payments are effected by the delivery of gold in London, as previously stated, with the consequence that dealings in London exchange in New York are considerably greater than in New York exchange in London. But because of arbitraging and the other exchange operations conducted between the people of the two cities, the relation of the volume of New York gold offerings to the volume of London gold offerings tends to be the same in both centers, and the rates make for parity at a point, above or below the par of 480 grains, which is fixed by the relation which the total of New York gold offerings in both cities bears to the similar total of London gold offerings.

Process of Adjustment to New Level.—While a change in this common rate merely reflects an altered relation of the total payments made in one direction to the total made in the other direction, it is seldom that the adjustment to the new level takes place without temporarily destroying the parity of the markets. If the payments from London to New York, for example, are suddenly augmented and are made entirely by the delivery of gold in London, the rapid enlargement of the supply of London exchange in New York will not be immediately counterbalanced by a proportionate expansion of the demand for New York exchange in London. Under those circumstances the rate in New York will undergo a sudden decline, which will not be met at once by a corresponding advance in the rate in London. Disparity will, therefore, appear between the quotations. But within a few hours the action of arbitrageurs and others (*B* and *B'* in the diagram) who will not be slow to take advantage of the situation, will begin to tell, and the resulting redistribution of the gold offerings between the two cities will again establish an identical relation between them in the two markets and bring the rates to equality. In the process both rates will be affected. But the greatest change will occur in the rate in London, where the market is narrower. That is to say, parity will be restored rather through a fall in the London rate than through an advance in the New York rate. Thus it is seen that, while the two markets are interdependent, London is nevertheless largely dominated by New York. The rate in the latter place is regulated mainly by the ordinary demand and supply, whereas the rate in London usually follows it in sympathy, in answer to the conditions of demand and supply resulting from the activities of arbitrageurs.

Concurrent Specie Points in the Two Centers.—When the intercity payments are running on balance in favor of London, a given quantity of London gold commands in both places a greater

amount of New York gold; and London cables in New York are accordingly at a premium, while New York cables in London are at a discount. As this excess of payments grows larger, the premium and the discount increase; and with the continuance of the tendency, the rates eventually reach their respective gold points —the export point in New York and the import point in London —at the same time, provided they maintain mutual parity.[2] If the rates move beyond these specie points, gold consignments can be undertaken with equal advantage by shippers of both cities, if they incur the same expense and interest loss (at the London rate) on the shipments. In arbitraging against their shipments they will naturally perform their offsetting exchanges in the more favorable market if the rates happen to be at disparity.

When the balance of settlements in favor of London declines, the rates draw together toward the par of 480 grains, which is reached when the payments in the one and the other direction exactly offset each other. Thereafter, if the current of payments to New York overbalances the current to London, the rates again draw away from par; but this time London cables in New York decline to a discount, while New York cables in London advance to a premium, since now a given amount of New York gold exchanges for a greater quantity of London gold in both centers. Ultimately, if the balance of payments in favor of New York continues to grow, the rate in New York will arrive at the gold import point, and the rate in London will simultaneously touch the gold export point, if the parity relation is preserved between

[2] As the gold export rate in New York is equal to $(480 + e)(1 + I)$ (see page 27), the parity rate in London is $\frac{480^2}{(480 + e)(1 + I)}$,

i.e., $$\frac{(480 + e)(1 + I)}{480} = \frac{480}{\frac{480^2}{(480 + e)(1 + I)}},$$

which is the London gold import rate.

them.[3] When the rates exceed their specie points, consigners in both cities can forward the metal from London to New York on an equal footing if they incur the same expense and interest loss (at the New York rate).

Effect of Different Quotation Methods in Two Cities.— Throughout this analysis of the dual system of transacting gold exchanges between the two cities through the medium of the spot cable transfer, we assumed the use of the first method of quotation in both centers, having expressed the rate in New York in terms of New York gold, and the rate in London in terms of London gold. But as has already been stated, while New York quotes its rate according to this system, London in actual practice employs the other system, denoting the rate for New York exchange in New York gold. Quotations in both centers accordingly refer to the amount of New York gold which is exchangeable for 480 grains of London gold. It follows, then, that when the rates are in parity, they are indicated by an identical figure. Thus, if the rate in New York is 481 grains, its equivalent in London is also 481 grains, both having reference to the ratio

$$\frac{\text{481 grains of New York gold}}{\text{480 grains of London gold}}.$$

The employment of different methods of quotation in the two cities has the obvious advantage of rendering a comparison of their rates easier. Moreover, under these varying systems of indicating rates, the gold export rate in New York and the gold

[3] As the gold import rate in New York is $\frac{480^2}{(480+E)(1+i)}$ (see page 29), the equivalent rate in London is $(480+E)(1+i)$,

i.e., $$\frac{\frac{480^2}{(480+E)(1+i)}}{480} = \frac{480}{(480+E)(1+i)},$$

which is the London gold export rate.

import rate in London are both equal to $(480 + e)(1 + I)$ (see pages 27 and 32), while the gold import rate in New York and the gold export rate in London are both equal to

$$\frac{480^2}{(480 + E)(1 + i)}$$

(see pages 29 and 33).

CHAPTER IV

FUTURE CABLE EXCHANGE

Future Cable Exchange Defined.—Thus far only one species of exchange, the spot cable transfer, less frequently called "prompt" or "ready cables," has been discussed. In this system of exchange the two gold deliveries are made immediately, or as soon as possible after the bargain is closed. But, manifestly, it is also possible to enter into engagements in the present for the exchange of gold at a specified future time. Contracts which call for such forward deliveries are commonly known by the general names of "future contracts," "future exchange," or simply "futures." As we shall learn in the course of our discussion in this and the next few chapters, there are several classes of future exchange, differentiated from one another in respect to the relative time stipulated for the two deliveries. Contracts which provide for deliveries on the same future date are referred to as "future cable exchange" or "future cables." As they resemble spot cables in that the two deliveries are simultaneous, it is logical to deal with them next.

Typical Future Exchange Transaction.—Let us commence by examining the origin of the supply and demand of future exchange in general, using future cables as an illustration. A practical example will serve our purpose best. A typical case is that of the American grain exporter, who customarily contracts for the sale of his stock-in-trade in advance, generally in the early spring, before the grain has even been harvested. Suppose Erskine, an exporter in New York, sells Arthur, an importer in London, a quantity of wheat for 1,000 ounces of gold payable in London, on the condition that the wheat be consigned and

the gold delivered 3 months hence. Let us say that Erskine is loath to take any speculative risks. Accordingly, as soon as he has closed his sale contract, he enters at once into another for the purchase of wheat, likewise for delivery 3 months hence. He thus protects himself against a possible advance in the price of the commodity pending delivery on his sale. Moreover, as he intends to convert the London gold he will receive into gold in New York, he also proceeds to safeguard himself against loss from a possible decline in the exchange rate in the meantime. This he does by contracting to exchange at a stipulated rate the prospective London gold for New York gold on the basis of the simultaneous delivery of both lots at the end of three months. In the technical phraseology of exchange dealers, he sells a future cable on London for 1,000 ounces. As a matter of fact, he makes certain of the price he will have to pay for the wheat and the rate he can get for his future cable, before he accepts Arthur's offer to purchase; and on the basis of these two quotations he computes the price he must charge Arthur for the wheat to make a profit on the turnover. Suppose he purchases the wheat for 900 ounces of New York gold, and sells the future cable for 481½ grains, which quotation refers to the amount of New York gold that 480 grains of London gold will yield in exchange 3 months hence. When the delivery date arrives, he turns over to the buyer of the future cable the 1,000 ounces he is paid in London by Arthur, and receives from him 1,003⅛ ounces (1,000 × 481½ grains) in New York. He thus reaps a profit of 3⅛ ounces.

Here it is natural to ask: Who was the buyer of the cable and why did he make the purchase? We may answer the question by supposing that at the time Erskine was arranging his sale of wheat, Dalton, an importing merchant in New York, was purchasing a bill of goods from Carter of London for 1,000 ounces payable in London at the end of 3 months; and that he likewise did not care to incur the risk of loss from an adverse movement, that is, from an advance in the spot cable rate in

the meantime. He, therefore, took the precaution of purchasing a future cable. Now that the contract has matured, he delivers the 1,003⅛ ounces of New York gold to Erskine, who on his part cables his customer, Arthur, in London to pay the 1,000 ounces owing him to Carter for account of Dalton. Thus by agreeing in advance on the rate at which they should mutually exchange London gold for New York gold 3 months later, Erskine and Dalton relieved each other from the necessity of assuming any speculative commitment on the future course of the spot rate.

Sources of Future Exchange.—The grain exporter in the above example typifies the principal source of supply of future exchange, which takes in all who on one account or another, either because of their present or past sales of merchandise and securities on the other side, or the approaching maturity of their British investments, will come into possession of London gold, and prefer to fix in the present the rate at which they will convert it into New York gold. The main source of demand for future exchange is exemplified by Dalton, the New York importer. It comprises all who, like him, are entering, or have already entered into engagements to deliver gold in London at a certain future time, either on account of present or past purchases made abroad, or on account of borrowings shortly to mature in London, and at the same time desire to settle without further delay the question of the rate at which they shall exchange New York for London gold when they must make payment.

The other general source of demand and supply of future exchange consists of the speculative element among foreign exchange traders. Their output or absorption of this class of exchange runs into fairly large totals at certain seasons of the year. When they anticipate a decline in the spot rate, say, in the next 2 months, they sell futures (sell them "short," in the parlance of speculators) to run for approximately that period;

and subsequently, with the approach of the delivery day, they purchase spot cables by way of securing London gold to protect their future contracts. They are successful or fail in their speculations, depending upon whether they pay a lower or a higher price for the spot exchange than that at which they have sold their futures. In the other case, when they look for an advance in the spot rate in the next few weeks or months, they purchase future cables; and later, upon the maturity of the contracts, they sell spot exchange against their receipt of London gold, making a profit or suffering a loss according as they obtain a higher or a lower rate than they have paid for the future.

Delivery Dates.—Future exchange is bought and sold for various maturities, ranging usually from several days to several months. The actual time of delivery may be the last day, week, fortnight, or month the contracts run, depending largely upon whether their term is short or long. Where the delivery period is longer than a day, the contracts stipulate whether the seller has the option of tendering, or the buyer of demanding delivery of London gold on any day he elects within the designated time. As between exchange dealers, future contracts usually provide for seller's option. Where the buyer is accorded the privilege of naming the exact delivery date, he is charged a slightly higher rate than for contracts of the same maturity granting the right to the seller.

Spot and Future Cable Rates at Mutual Parity.—After this brief description of the nature of future exchange and the general purpose it serves, the relation which the spot and future cable rates tend to maintain to each other comes up for discussion. The two types of exchange make for a state of mutual equivalence, if the factor of interest for the period of the future is taken into account. In proving this tendency, the best procedure is first to ascertain the relationship of the rates when they are thus

at parity, and then demonstrate that they tend to keep that relationship.

A person in New York who has a debt to pay in London on a certain future date, can avoid the risk of a subsequent advance in the spot rate either by buying a spot cable in the present and lending out the London gold he gets thereby until the maturity of his debt; or by buying a future cable for delivery on the due date of his obligation, and in the meantime lending out his gold in New York. In deciding between these two forms of remittance he will naturally be governed by the question of their relative cheapness. He will purchase the one which will take the smaller amount of present or spot gold in New York to yield him on the due date of his debt the required quantity of London gold. In other words, he will select the mode of remittance by which he will, actually or in effect, have to part with the smaller amount of New York gold in the present to secure the necessary amount of London gold when his debt matures. It will be observed that he makes the comparison on the basis of what to all intents and purposes is an exchange of New York gold delivered now for London gold delivered in the future.

Relation of Spot and Future Rates Illustrated.—Take the instance of a person in New York who has a debt to pay in London 10 days hence, and at the same time desires to contract for the exchange of gold immediately, in order to escape the risk of an unfavorable movement in the spot cable rate pending the maturity of his obligation. Assume that this day is July 1 and the maturity day of his debt is July 10. Suppose the spot cable rate at the moment is 481 grains, and the annual interest rate is 6% in New York and 4% in London, or $\frac{1}{600}$ and $\frac{1}{900}$ respectively for the 10 days. If the debtor purchases a spot cable and forthwith lends out the London gold for 10 days, it is obvious that for every 481 grains of New York gold he delivers now, he will have $(\frac{901}{900} \times 480)$ grains of London gold on July 10

to apply to the liquidation of his obligation. But if instead he should purchase a 10-day future and lend out his New York gold until July 10, he will have ($\frac{801}{800} \times 481$) grains to deliver on the contract for every 481 grains he has loaned. Assume, now, that the rate he pays for the future is exactly ($\frac{801}{800} \times 481$) grains of New York gold against ($\frac{801}{800} \times 480$) grains of London gold, both delivered 10 days hence. In that event the future cable is equivalent to the spot cable, since in purchasing either the remitter will have ($\frac{801}{800}$ of 480) grains of London gold on July 10 for every 481 grains of New York gold he actually or in effect gives up in the present. But as this future ratio of

$$\frac{(\frac{801}{800} \times 481) \text{ grains of New York gold}}{(\frac{801}{800} \times 480) \text{ grains of London gold}}$$

is equal to the ratio

$$\frac{(\frac{801}{800} \times \frac{800}{801} \times 481) \text{ grains of New York gold}}{480 \text{ grains of London gold}},$$

it is evident that as ordinarily quoted the rate for the 10-day future cable equivalent to, or at parity with, the spot cable rate of 481 grains is ($\frac{801}{800} \times \frac{800}{801} \times 481$) grains, which is to say, that the future parity of the prevailing spot cable rate is equal to the sum of that spot rate and interest thereon at the New York rate for the 10 days the future cable runs, discounted at the London rate of interest for the same 10-day period.

Assuming again the exchange quotations and interest rates of the preceding example, let us take the reverse case, where a person in New York has in prospect the receipt of a certain amount of London gold on July 10, and wishes to enter now, that is on July 1, into a contract for the conversion of the metal into New York gold. He can accomplish his purpose either by borrowing in London in anticipation of the receipt of the payment and selling spot cables against the proceeds of the loan; or by

selling a future cable deliverable on July 10. Suppose he resorts to the sale of spot cables, borrowing ($\frac{9}{9}\frac{0}{0}\frac{0}{1} \times 480$) grains in London for every 480 grains he will be paid on July 10, or an amount which with the 10 days' interest added will just be covered by the payment he will receive. The ($\frac{9}{9}\frac{0}{0}\frac{0}{1} \times 480$) grains of exchange he sells bring him immediately ($\frac{9}{9}\frac{0}{0}\frac{0}{1} \times 481$) grains of New York gold, which loaned out to July 10 will increase to ($\frac{9}{9}\frac{0}{0}\frac{1}{0} \times \frac{9}{9}\frac{0}{0}\frac{0}{1} \times 481$) grains. He will, therefore, have this amount of New York gold on July 10 for every 480 grains he will in effect deliver on the same date in London. But, manifestly, he would fare exactly as well if he sold a 10-day future cable at the rate of ($\frac{9}{9}\frac{0}{0}\frac{1}{0} \times \frac{9}{9}\frac{0}{0}\frac{0}{1} \times 481$) grains. It is thus apparent that in the case of either purchase or sale of exchange, the future parity of the spot cable rate of 481 grains is ($\frac{9}{9}\frac{0}{0}\frac{1}{0} \times \frac{9}{9}\frac{0}{0}\frac{0}{1} \times 481$) grains.

Calculating Spot and Future Cable Rates.—In general, then, the future cable parity of the current spot cable price is equal to the sum of the spot price and interest thereon at the New York rate for the maturity of the future, discounted at the London rate of interest for the same period. If we take c to denote the spot cable price, f the future cable price, i the interest rate in New York, and I the interest rate in London for the term of the future, we have the following equation:

$$f = \frac{c(1 + i)}{(1 + I)},$$

from which we derive the converse equation,

$$c = \frac{f(1 + I)}{(1 + i)}.$$

Expressed in words, this latter equation reads as follows: The spot cable parity of the future cable price is equal to the sum of the future price and interest thereon at the London rate for the

period of the future, discounted for the same space of time at the New York interest rate. It will be noted that when the two forms of exchange are at parity, the future price is above or below the spot price according as the interest rate is higher or lower in New York than in London, and that the two prices are identical quotations when the interest rates are equal.

In comparing the two forms of remittance different methods were used in the two preceding examples. In the first, the comparison was made on the basis of the present or spot delivery of New York gold against the future delivery of London gold, while in the second it was made on the basis of the simultaneous delivery in the future of the two lots of gold. The change in the mode of comparison was made for no other reason than mere convenience. As a matter of fact, any method may be followed in ascertaining the relative cheapness of two different types of exchange, provided it is assumed that the New York deliveries on the one hand, and the London deliveries on the other, are effected simultaneously, and the proper interest adjustments are made in each center. It is possible, for example, to make the comparison of spot and future cables on the assumption of the immediate delivery of New York and London gold in the case of both forms of exchange.

Tendency Toward Mutual Parity.—That spot and future cables constantly tend, with greater or less force, to mutual parity, is not difficult of demonstration if concrete examples of disparity are taken, and if it is observed how in consequence of the disparity the demand and supply of each class of exchange undergo a process of readjustment which gradually restores the rates to a parity basis. Assume that the rate for spot cables is 481 grains and for 10-day future cables $481\frac{1}{2}$ grains, and the interest rate for the 10 days is $\frac{1}{600}$ in New York and $\frac{1}{900}$ in London. As the future parity of the spot rate is ($\frac{601}{600} \times \frac{900}{901} \times 481$) grains, it is less than the current future rate by $\frac{210}{901}$ of a

grain; and, vice versa, as the spot parity of the future rate is ($\frac{991}{990} \times \frac{999}{991} \times 481\frac{1}{2}$) grains, it is greater than the actual spot rate by $\frac{149}{991}$ of a grain. Spot cables are, therefore, cheaper than future cables, and will be purchased in preference to the latter by the more alert remitters who have obligations to meet 10 days hence in London and want to arrange their exchanges immediately. On the other hand, future instead of spot cables will be marketed by the more enterprising among those who are going to acquire gold in London in 10 days and wish to contract their exchanges in the present.

In consequence, then, of the existing disparity, the demand for exchange will shift from the future to the spot variety, while the supply will come upon the market more in the shape of future cables and less in the shape of spot cables than previous to the occurrence of the disparity. The spot price will, accordingly, advance and the future price decline until they arrive at a position of mutual parity. These tendencies in the rates are supplemented by the activities of those who are in reality arbitrageurs, though they are not customarily so regarded. Borrowing and purchasing spot cables in New York, these operators lend the London gold out for 10 days, and at the same time sell 10-day future cables for an amount equal to the London loan, plus interest thereon. They thus create an additional demand for spot cables and augment the supply of future cables. Their profit at the end of the 10 days will amount to the difference between the prevailing future rate and the future parity of the spot rate on every 480 grains of spot cables they purchase.

If we turn to the opposite case of disparity, in which spot cables are dearer than future cables, we shall notice a similar tendency to parity in the rates. An instance of this sort of inequivalence is afforded by taking the conditions of the preceding example, except the rate for futures, which we shall assume to be $480\frac{3}{4}$ grains. In this situation the future rate is below the future parity of ($\frac{991}{990} \times \frac{999}{991} \times 481$) grains, while the spot cable

rate of 481 grains is above the spot parity of ($\frac{9}{10}\frac{0}{0}\frac{1}{0} \times \frac{8}{8}\frac{0}{0}\frac{0}{1} \times 480\frac{8}{4}$) grains. It will now advantage those remitters who have debts to pay in London 10 days hence to purchase future instead of spot cables, while it will be to the interest of those contemplating the present sale of exchange against the receipt of London gold 10 days from now to market spot instead of future cables.

The outcome of such a rate situation is manifestly a lessened demand and an augmented supply of spot cables, and an increased demand and a reduced supply of future cables. The rates will respond accordingly, the spot quotation falling and the future quotation rising; as they thus move away from each other, they will approach a position of parity. The tendency is strengthened by the arbitraging operations induced by the disparity of the rates. Selling spot cables against 10-day loans they procure in London, the arbitrageurs lend the New York gold out for an equal period, and at the same time purchase 10-day futures as cover for their borrowings in London, delivery on which they will make out of the proceeds they will receive from the repayment of their advances. Their profit at the end of the 10 days will amount to a quantity of New York gold equal to the difference between the future parity of the current spot rate and the actual future rate on every 480 grains of spot cables they sell.

Means of Parity Readjustment.—In either case of disparity the two rates are drawn to a parity relationship by influences which are automatic in their action. In practice, however, the readjustment is brought about through a movement in the future rather than the spot quotation. This is because the future market, being far less active than the spot market, is more sensitive to the action of the forces making for parity. In the last illustration, for example, the equivalence between the two forms of exchange is re-established to a greater extent by the advance of the future rate than by the decline of the spot rate.

In arriving at the law governing the relationship of the two

rates, we tacitly assumed that trading in future cables was of sufficient proportions actually to produce the tendency to parity. With the exception of a few maturities, however, which from time to time become fairly active in answer to periodical or special developments, business in futures is too light in volume to produce any strong tendency to parity with spot cables, so that the relationship between the two rates is usually a loose one.

Gold Export Point of Future Cables.—Where the rate for future cable exchange of a particular maturity actually tends to keep the parity relation with the rate for spot cables, its fluctuations approximately parallel the movements of the spot quotation. It advances to a premium and falls to a discount below the par of 480 grains together with the spot rate, shifting in the meantime its position a trifle with reference to the spot rate as the interest rates in the two centers change in relation to each other. But since the movements of the spot rate are confined within limits above and below par which are fixed by the cost and interest loss on gold shipments to London, the fluctuations of the future rate must needs be also restricted within a well-defined area above and below par. The limits of this area are the points at which future cables are equivalent to gold consignments.

Let us first consider the gold export point of a future cable running for the time required to ship gold to London, which we shall assume to be 10 days. Suppose the total cost of carriage is $1\frac{1}{2}$ grains per 480 grains, and the 10-day interest rate is $\frac{1}{600}$ in New York and $\frac{1}{900}$ in London. Under these conditions the gold export rate for spot cables is $(\frac{900}{901} \times 481\frac{1}{2})$ grains (see page 26), while the future parity of the spot rate is $[\frac{600}{601} \times \frac{900}{901} \times (\frac{900}{901} \times 481\frac{1}{2})]$, or $(\frac{600}{601} \times 481\frac{1}{2})$ grains (see page 59). That this latter quotation is the existing gold export rate for the 10-day future cables requires for proof only the citation of an example. Suppose a remitter purchases a future at this rate. For every

$481\frac{1}{2}$ grains he has at present, he can purchase 480 grains of the future, since $481\frac{1}{2}$ grains put out at interest in New York for the life of the future will increase to $(\frac{601}{600} \times 481\frac{1}{2})$ grains. But he would do precisely as well if he shipped gold instead, since he would likewise have 480 grains in London ten days hence against every $481\frac{1}{2}$ grains he has now in New York. The purchase of the future cable being thus equivalent to the export of gold, $(\frac{601}{600} \times 481\frac{1}{2})$ grains is the future cable gold export point.

The Future Export Rate.—Spot cables and future cables deliverable in the time necessary to complete a gold shipment tend thus to arrive together at their respective export points, and the future export rate is equal to the sum of the par of 480 grains and the expense incident to the shipping of that amount of gold to London, plus interest on this sum at the New York rate for the shipping period or the life of the future. Stated algebraically, the future export rate equals $(480 + e)\ (1 + i)$. The spot and future cable export points, then, differ only in this, that in the case of the spot export point the interest loss on the gold consignment is calculated at the London rate, while in the case of the future export point it is figured at the New York rate.

Gold Import Point of Future Cable Exchange.—Next to be discussed is the gold import point of future cable exchange maturing in the time required to bring gold over from London, which we shall assume to be 10 days. Suppose the 10-day interest rates in the two cities are the same as in the preceding example, and the cost of importing 480 grains from London is $1\frac{1}{2}$ grains. The spot import rate is in that case $\left(\frac{600 \times 480^2}{601 \times 481\frac{1}{2}}\right)$ grains (see page 29), while the future parity of this rate is

$$\left(\tfrac{601}{600} \times \tfrac{900}{901} \times \frac{600 \times 480^2}{601 \times 481\frac{1}{2}}\right) \text{ or } \left(\frac{900 \times 480^2}{901 \times 481\frac{1}{2}}\right) \text{ grains,}$$

which is also the gold import point of the future, as the following example will show. If a person in New York undertakes to ship home the gold he owns in London, the consignment will net him 480 grains in New York 10 days hence for every 481½ grains he has now in London, the difference of 1½ grains being absorbed by the transportation charges. Suppose, however, he decides upon the sale of a 10-day future at the above mentioned rate. Pending his delivery of London gold on the contract, every 481½ grains will be increased by interest to $(\frac{901}{900} \times 481\frac{1}{2})$ grains. He can accordingly sell a future for that amount, on which he will receive at the end of 10 days 480 grains in New York,

i.e.,
$$\frac{\frac{900 \times 480^2}{901 \times 481\frac{1}{2}}}{480} = \frac{480}{\frac{901 \times 481\frac{1}{2}}{900}}.$$

Thus, whether he imports the metal or sells a 10-day future against it, he will be in possession of 480 grains in New York 10 days from now, for every 481½ grains he has at present in London. Hence

$$\frac{900 \times 480^2}{901 \times 481\frac{1}{2}}$$

is the gold import rate for the 10-day future.

We may, therefore, conclude that the spot and future cable rates tend to touch their respective import points simultaneously, and that the future import rate is equal to the square of the par of 480 grains divided by the following quantity: the sum of par and the cost of importing the par amount of gold, plus interest on this sum at the London rate for the transportation period or the life of the future. Expressed in algebraic terms, the future import point equals

$$\frac{480^2}{(480 + E)\ (1 + I)}.$$

From this we may deduce the further fact that the discount on the gold import price for future cables is equal to the expense of importing an amount of gold equal to that import price, plus interest on the sum of the import price and the expense of transportation at the London rate for the shipping period. It will be observed that the future cable import price differs from the spot cable import price only in that the interest loss on a gold shipment is calculated at the London rate instead of the New York rate.

Relation of Specie Points to Shipments.—Spot and future cable rates naturally tend to preserve their parity relation even when they move beyond their respective specie points, and shipment in the one or the other direction, as the case may be, is rendered more advantageous than either form of exchange. So long as they remain at parity, it is immaterial to arbitrageurs which they resort to as an offset against shipment, since they stand to realize the same amount of profit in either case. If disparity arises when the rates are beyond their specie points, arbitraging can be profitably undertaken between the two exchanges, or between either exchange and gold consignment. But, obviously, the operation calculated to yield the best results is that made between shipment and the exchange whose rate is farther removed from its specie point. Then, too, if one of the exchanges happens to be beyond while the other is still within its specie point, the situation is unfavorable for gold shipments, since the former exchange is the most advantageous method of withdrawing and the latter of remitting funds to London, while arbitraging between the two exchanges is the most profitable.

In determining the location of the future cable specie points, we took the special case of a future whose term was coextensive with the shipping period. Other futures of longer or shorter maturity than the shipping period have also specie points, but as they are not as often resorted to in connection with gold

shipments, their gold points are of less practical importance. The theoretical specie points of such futures are determined in the manner indicated above with respect to the specie points of futures running for the shipping period, except that an additional interest adjustment must be made to allow for the difference of time between the length of their life and the shipping period.

Future Exchange Traded in in Both Cities.—Dealings take place in London in future exchange on New York, in precisely the manner described with reference to similar transactions in New York. The rates for the various future cable maturities exhibit a tendency to parity with the local spot cable rate analogous to that we have seen prevail in the New York market, but the parity relation of the future and spot quotations is the reverse of that in New York, owing to the fact that under our supposition London rates are quoted in London gold, while New York rates are quoted in New York gold. If F represents the rate of a future cable in London and C the spot cable rate, then F equals

$$\frac{C(1+I)}{(1+i)},$$

when parity obtains between the two rates, or the sum of the spot price and interest on it at the London rate for the period of the future, discounted at the New York rate of interest for the same period; and conversely C equals

$$\frac{F(1+i)}{(1+I)},$$

or the sum of the future price and interest on it at the New York rate for the period of the future, discounted at the London rate of interest for the same period (i and I denote the interest rates for the period of the future in New York and London respectively). Furthermore, the gold export point of a future

cable in London running for the time it takes to ship gold to New York is $(480 + E)\ (1 + I)$, or the sum of par and the cost of exporting the par amount of gold, or 480 grains, plus interest on this sum at the London rate for the shipping period; while the gold import rate of a future maturing in the time it takes to import gold from New York is

$$\frac{480^2}{(480 + e)\ (1 + i)},$$

which makes the discount on the import rate equal to the cost of importing gold amounting to the import rate, plus interest at the New York rate for the importing period on the sum of the import rate and the foregoing shipping cost.

Future Cable Rates Expressed in Foreign Gold.—The discussion of future cable exchange may be concluded by considering briefly its rate in London when expressed by the second system of quotation. Under the first system, when exchange rates in London are quoted in terms of London gold, the parity rate of a ten-day future cable is $(\frac{9}{8}\frac{0}{0}\frac{1}{0} \times \frac{9}{8}\frac{0}{0}\frac{0}{1} \times 479)$ grains, assuming 479 grains to be the spot cable rate, and $\frac{1}{9}\frac{1}{0}\frac{1}{0}$ and $\frac{1}{8}\frac{1}{0}\frac{1}{0}$ to be the 10-day interest rates in London and New York respectively. As the ratio represented by this future rate,

$$\frac{480 \text{ grains of New York gold}}{(\frac{9}{8}\frac{0}{0}\frac{1}{0} \times \frac{9}{8}\frac{0}{0}\frac{0}{1} \times 479) \text{ grains of London gold}},$$

is equal to the ratio

$$\frac{(\frac{9}{8}\frac{0}{0}\frac{1}{0} \times \frac{9}{8}\frac{0}{0}\frac{0}{1} \times 481\frac{1}{4}\frac{1}{7}\frac{1}{9}) \text{ grains of New York gold}}{480 \text{ grains of London gold}},$$

it is evident that under the second system of quotation the rate for the future is $(\frac{9}{8}\frac{0}{0}\frac{1}{0} \times \frac{9}{8}\frac{0}{0}\frac{0}{1} \times 481\frac{1}{4}\frac{1}{7}\frac{1}{9})$ grains, which, it will be noticed, is the parity rate of a similar future in New York,

provided the New York spot cable rate is at parity with the London spot cable rate and is accordingly quoted 481$\frac{1}{4}\frac{1}{6}$ grains (of New York gold). It is thus apparent that with the first system of quotation in use in New York and the second system in London, the parity quotations in the two centers for futures of corresponding maturity are identical, provided the spot cable rates are at parity with each other.

CHAPTER V

DEMAND EXCHANGE

Limitations of Cable Transfer.—From the standpoint of the relative time of the two deliveries, we have so far had to do with only one class of exchange, the cable transfer, the distinguishing characteristic of which is the simultaneous delivery of the two lots of gold, either in the present or at a stated future time.

Before the era of cable communication, the spot cable transfer was, of course, a physical impossibility. But even nowadays, when the cable facilities are so greatly expanded, the use of this form of remittance is restricted, for the most part, to large transactions, or to cases where speed is the primary consideration. Only in war, when traffic on the seas is interrupted and the ocean mail service is too unreliable, does spot cable exchange become the regular means of remittance. In ordinary times the great bulk of the exchanges are arranged through the medium of the international mails, particularly in the case of the multitudinous small remittances, in connection with which the cost of cabling is out of all proportion to the amount remitted.

Demand Exchange Defined.—Known as "demand" or "sight exchange," remittance by mail constitutes the second general type of exchange. It is the most important type because it is most commonly employed. Its fundamental characteristic is that a period of time intervenes between the two deliveries. While the New York gold is delivered immediately, or practically so, delivery in London is not obtained until the arrival from New York of a written order for it in the shape of a demand or sight draft, or bill of exchange. To take a simple case, if Adams of New York remits to London by effecting a de-

mand exchange with Barnard of New York, he pays the latter immediately the stipulated amount of New York gold, and receives from him a draft directing Barnard's debtor, Carson, in London to deliver the specified amount of gold to Adams's creditor, Dombey, in London. Adams posts the draft by the earliest mail to Dombey, and as soon as the latter receives it, he presents it to Carson and gets the stated amount of gold.

Thus, demand or sight exchange consists of the exchange of spot gold in New York for future gold in London, represented by a draft made payable upon arrival in that city. The draft itself is customarily referred to as "demand" or "sight exchange," and is regarded as being bought and sold. The transaction in the example above would be commonly described as Adams purchasing demand exchange from Barnard. The price paid for demand exchange is known as the "demand" or "sight rate." Under the first system of quotation it indicates the amount of New York spot gold which is given in exchange for 480 grains of London gold delivered upon the arrival of the next mail in London.

Relation of Demand and Spot Cable Rates at Mutual Parity.— From the foregoing it is evident that the buyer of demand exchange has the use of neither lot of gold for the space of the mailing period, while the seller during the same time is in possession of both the buyer's gold in New York and his own in London. But the buyer suffers no loss thereby, for the seller allows him interest in the shape of a concession from the prevailing spot cable rate. Hence, although the quotations for the two forms of exchange always differ, they may be mutually equivalent. As a matter of fact, they constantly make for parity. But before discussing this tendency, it is advisable to determine the exact relation of the rates when they are thus at parity. For this purpose we shall resort to our usual device of citing concrete illustrations.

A Typical Case.—Suppose the spot cable rate at the moment, which we shall assume to be July 1, is 481 grains, that the time required to mail a draft to London is 10 days, and that the London interest rate is 4% per annum, or $\frac{1}{90}$ for the 10 days. As already explained, a person in New York who has a debt coming due in London on July 10, can provide in the present for its retirement on the due date by purchasing a spot cable and putting the London gold out at interest until July 10. But he has the alternative of purchasing and mailing a demand draft. If he has recourse to the former method, he will obviously have ($\frac{901}{900} \times 480$) grains of London gold on July 10 to devote to the payment of his obligation for every 481 grains of New York gold he surrenders in exchange on July 1. If at the same time the rate for demand exchange is such that for 481 grains he can purchase a demand draft for ($\frac{901}{900} \times 480$) grains, the two methods of remittance are manifestly equivalent. As this demand exchange ratio of

$$\frac{481 \text{ grains of New York gold}}{(\frac{901}{900} \times 480) \text{ grains of London gold}}$$

corresponds to the ratio

$$\frac{(\frac{900}{901} \times 481) \text{ grains of New York gold}}{480 \text{ grains of London gold}},$$

it is apparent that as customarily quoted the demand rate equivalent to the spot cable rate of 481 grains is ($\frac{900}{901} \times 481$) grains. That is to say, the so-called "demand parity" of the current spot cable price is equal to that cable price discounted at the London interest rate for the 10-day mailing period.

A Sale of Exchange.—This same relationship between the two rates when at mutual parity holds true in the case of a sale of exchange. Let us take a person in New York who will come into possession of a quantity of London gold in 10 days, or on

July 10. To sell on July 1 a spot cable against this future gold he must obviously borrow in London a sum equal to ($\frac{999}{1000} \times 480$) grains for every 480 grains he will receive. The sale of this amount of cables at the rate of 481 grains yields him immediately in New York ($\frac{999}{1000} \times 481$) grains. Thus by marketing spot cables on July 1, he acquires ($\frac{999}{1000} \times 481$) grains of New York gold against every 480 grains of London gold he will receive and in turn deliver on July 10. But as he can obtain precisely the same result by selling demand exchange at the rate of ($\frac{999}{1000} \times 481$) grains, it is manifest that this rate is the demand parity of the spot cable rate of 481 grains in the case of a sale as well as a purchase of exchange.

We have, therefore, established the general proposition that when demand exchange is at parity with spot cables its rate is equal to the cable quotation discounted at the London interest rate for the time it takes to mail a draft to London. To put the formula in the form of an algebraic equation, if d denotes the demand price, c the spot cable price, and I the London interest rate for the mailing period, d equals

$$\frac{c}{(1+I)}.$$

Conversely, as c equals $d(1+I)$, the cable parity of the demand rate is the demand quotation, plus interest on it at the London rate for the mailing period. Finally, since $(c-d)$ equals $(I \times d)$, the parity difference, or "spread," as it is usually called, between the spot cable and demand prices amounts to interest on the demand price at the London rate for the mailing period.

Demand Exchange Tends to Parity with Spot Cables.— That the two rates tend to keep their parity relationship is shown by the following examples illustrating opposite cases of disparity. Assume the conditions of the preceding example, except the rate for demand exchange, which is now taken to be 480 grains.

Inasmuch as the demand parity of the cable rate of 481 grains is ($\frac{9}{9}\frac{0}{0}\frac{0}{1} \times 481$) or $480\frac{4}{9}\frac{2}{0}\frac{0}{1}$ grains, the actual demand quotation is below this parity rate by $\frac{4}{9}\frac{2}{0}\frac{0}{1}$ of a grain, and demand exchange is accordingly cheaper than spot cables. Under those circumstances the more discriminating remitters will purchase demand drafts instead of cables, while the shrewder sellers of exchange will make their offerings in the form of cables rather than demand drafts. This readjustment in the relation of the demand and supply of each class of exchange will receive further impetus from the operations of arbitrageurs. Against 10-day loans contracted in London they will sell cable transfers, and out of the proceeds they will purchase and remit demand drafts to London to liquidate the loans. Their profit will amount to $\frac{4}{9}\frac{2}{0}\frac{0}{1}$ of a grain of New York gold for every ($\frac{9}{9}\frac{0}{0}\frac{0}{1} \times 480$) grains of cables they sell; or, what amounts to the same thing, for every 480 grains of demand exchange they buy.

Thus, when demand exchange is quoted below parity with spot cables, the demand for it increases and the supply decreases; while the demand for spot cables declines and the supply grows larger. The demand price, accordingly, rises and the cable price falls. The spread between them contracts, and when it just equals interest on the demand price at the London rate for the mailing period, the quotations are in a position of mutual parity.

Difference Less than Parity Spread.—The same tendency toward equivalence is displayed by the two rates in the reverse case of disparity, when the margin of difference between them is less than the parity spread. For instance, let us assume that the demand rate is $480\frac{1}{2}$ grains, when the cable rate, the London rate of interest, and the length of the mailing period are the same as in the preceding example. Since the demand price now exceeds the demand parity of $480\frac{4}{9}\frac{2}{0}\frac{0}{1}$ grains by $_{1.8}\frac{6}{0}\frac{1}{2}$ of a grain, demand exchange is the more costly means of remittance.

Remitters accordingly will be inclined to purchase cable transfers in preference to demand drafts, while sellers of exchange will be disposed to offer demand drafts rather than cables. The existence of the disparity will also prompt arbitrageurs to market demand exchange, purchase cables from the proceeds, and lend out the London gold until the arrival of their drafts. The sum they will realize will amount to $\frac{61}{1,800}$ of a grain on every ($\frac{2000}{1901} \times 480$) grains of cable transfers they purchase, or on every 480 grains of demand exchange they sell at the same time.

Thus, when the difference between the existing rates is less than the parity spread, the demand for spot cables tends to expand and the supply to decline, while the demand for demand exchange tends to fall off and the supply to increase. There follows, in consequence, an advance in the cable rate and a decline in the demand rate; and as the rates move away from each other, the existing spread widens until it coincides with the parity spread, in which case the two forms of exchange are in equilibrium.

It follows, therefore, that the rates for demand and spot cable exchange are constantly drawn to a parity relationship. Any departure from this condition at once liberates forces which operate to correct the disparity and re-establish the equilibrium.

Parity Relationship Realized.—Of all the parity relationships which one class of exchange on London tends to maintain with the other classes, that between spot cables and demand bills is realized in actual experience in the greatest degree. Dealings in these two forms of remittance are larger and more frequent than in the others, and conditions are, therefore, more favorable for big traders to make the most of any disparity between them the moment it arises. Accordingly, as either rate advances in response to an increased demand, the other rises almost simultaneously; and as the one falls under pressure of heavier offerings, the other follows hard on its heels. As the cable market

is, however, less active as a rule than the demand market, the cable rate is controlled by the demand quotation, so that readjustment to mutual parity is mostly brought about by a movement in the former. The rates, however, do not tend to parallel each other's movements absolutely, since they change to a certain degree in relation to each other. The parity spread between them widens or contracts as the London interest rate or the length of the mailing period increases or decreases.

The purchaser of demand exchange, in addition to performing an exchange, makes an advance to the seller. He loans New York gold and is repaid in London gold, with interest computed at the London rate. As the interest rate on such advances necessarily varies with the relative credit standing of the borrowers, demand exchange must needs possess a plural quotation. Sellers enjoying a higher credit rating obtain a higher price for their drafts. In our general discussion of demand exchange, however, we are only concerned with the prime grade of bills, put out by drawers of first-class credit and commanding the highest market price.

Gold Export Point of Demand Exchange.—Since the demand rate moves up and down with the spot cable quotation, it is necessarily confined within limits above and below par, which are its specie points, or the points at which it is respectively equivalent to gold exporting and gold importing. Considering first the export point and assuming that a shipment of gold to London can be completed in the time it takes to mail a draft, as is substantially the case in actual practice, let us suppose that the demand rate of exchange is 481½ grains and the expense of shipping 480 grains is 1½ grains. In that situation the purchaser of demand exchange and the exporter of gold fare equally well, since both will come into possession of 480 grains at the end of the mailing or shipping period for every 481½ grains they part with now in New York. Remittance by demand exchange being

thus equivalent to shipping gold, 481$\frac{1}{2}$ grains is the demand gold export point. It will be observed that the premium on this export rate contains no element of interest, but is merely equal to the cost of shipping 480 grains.

In general the demand export rate is equal to par plus the cost of shipping the par amount of gold, or, expressed algebraically, it is equal to $(480 + e)$ grains. When the rate is driven above this specie point, shipment is rendered cheaper than the purchase of demand exchange, and arbitrageurs find it profitable to sell demand exchange and forward an equal amount of gold as cover for the drafts, as they stand to net the difference between the quoted rate and the export point for every 480 grains of exchange they sell and for every 480 grains of the metal they ship.

Parity of Export Rates.—The gold export rate for demand exchange is the parity of the gold export rate for spot cables, and also of the gold export rate for future cables deliverable in the shipping period. This is evident from the following example. In addition to the conditions assumed above, suppose that 10 days are necessary either to ship gold or mail a draft to London, and that the interest rate for the period is $\frac{1}{960}$ in London and $\frac{1}{960}$ in New York. Under those circumstances the gold export rate for spot cables is $(\frac{960}{960} \times 481\frac{1}{2})$ grains $[(480 + e)\ (1 + I)]$, which is manifestly the parity of the demand export rate of 481$\frac{1}{2}$ grains $[c = d(1 + I)]$. Thus the rates for both classes of exchange tend to reach their respective export points concurrently. Since future cables deliverable in the shipping period make for their export points simultaneously with spot cables, all three rates tend to arrive at their respective export points at the same time.[1]

[1] Inasmuch as demand and future cable exchange tend to parity with spot cables, they necessarily tend to parity with each other. When this parity relation obtains between them, the future cable price is equal to the sum of the

Arbitrageurs have, consequently, the choice of selling spot cables, future cables, or demand exchange against gold shipments. If the rates for all three forms of exchange are at parity to each other when quoted above their export points, it is immaterial which type of exchange they sell, as they stand to realize the same amount of profit in any case. Frequently, however, the rates show an appreciable divergence from parity, each as regards the other two, in which event arbitrageurs sell the dearest form of exchange against their gold consignments.

Gold Import Point of Demand Exchange.—In considering the gold import rate for demand exchange, let us assume that the cost of importing 480 grains is $1\frac{1}{2}$ grains, that 10 days are consumed in mailing a draft to London or in importing gold from London, and that the 10-day interest rate is $\frac{1}{600}$ in New York and $\frac{1}{900}$ in London. Under those conditions, if a person in New York orders the gold he has in London shipped home on July 1, he will have 480 grains in New York on July 10 for every $481\frac{1}{2}$ grains he in effect gives up now in London, the difference of $1\frac{1}{2}$ grains being expended in paying the transportation charges.

Suppose, however, that he transfers his gold to New York by sale of demand exchange. As he will not make delivery in London until his draft arrives there on July 10, the $481\frac{1}{2}$ grains he has in that city will have increased by then through interest accrual to $(\frac{901}{900} \times 481\frac{1}{2})$ grains. He can, accordingly, sell this amount of demand exchange on July 1. Assume that he receives $(\frac{600}{601} \times 480)$ grains for it. As this sum put out at interest until July 10 will amount to 480 grains, it is evident that the sale of demand exchange at the above rate is equivalent to the

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demand price and interest on it at the New York rate for the mailing period $[f = d(1 + i)]$; and, conversely, the demand price is equal to the future cable price discounted at the New York rate of interest for the mailing period $[d = \frac{f}{(1 + i)}]$.

importation of gold, since, as in the latter case, he will have 480 grains in New York on July 10 for every $481\frac{1}{2}$ grains he has in London on July 1. Moreover, as this ratio of

$$\frac{(\frac{800}{801} \times 480) \text{ grains of New York gold}}{(\frac{901}{900} \times 481\frac{1}{2}) \text{ grains of London gold}}$$

at which he markets the exchange is equal to the ratio

$$\frac{(\frac{800}{801} \times \frac{900}{901} \times \frac{480^2}{481\frac{1}{2}}) \text{ grains of New York gold}}{480 \text{ grains of London gold}},$$

the demand rate as usually quoted is

$$(\frac{800}{801} \times \frac{900}{901} \times \frac{480^2}{481\frac{1}{2}}) \text{ grains},$$

which is manifestly the gold import rate of the moment.

In general, then, the gold import rate for demand exchange is equal to the square of par divided by the sum of the following four quantities:

1. The par of 480 grains.
2. The cost of importing 480 grains.
3. Interest at the New York rate for the importing period on the sum of the two preceding quantities.
4. Interest at the London rate for the mailing period on the sum of the three preceding quantities.

Reduced to an algebraic expression, the demand import rate equals

$$\frac{480^2}{(480 + E)\ (1 + i)\ (1 + I)}.$$

From this formula we deduce the further fact that the discount on the gold import rate is equal to the sum of the following three quantities:

1. Interest at the New York rate for the shipping period on the import rate.
2. Interest at the London rate for the mailing period on the sum of the import rate and the first quantity.
3. The cost of importing an amount of gold equal to the sum of the import rate and the first and second quantities.

Demand Rate below Import Point.—When the demand rate falls below its import point, it becomes more advantageous to import gold from London than to sell demand exchange. Arbitrageurs are at the same time afforded the opportunity of making a profit by purchasing demand exchange against the simultaneous importation of gold. In performing the transactions they borrow both in New York and London. The drafts they purchase will meet the loans in London, while the gold they import will cover the loans in New York and leave a balance for profit.

Under the conditions assumed the spot cable import rate is

$$\left(\tfrac{4\,8\,0}{4\,8\,1} \times \frac{480^2}{481\frac{1}{2}}\right) \text{ grains,}$$

i.e.,

$$\frac{480^2}{(480 + E)\ (1 + i)}.$$

As this is equal to the demand import rate plus interest on it for the mailing period at the London rate, it is evident that the two rates are at parity. Both forms of exchange, accordingly, tend to arrive at their import points together. Moreover, since future cables maturing in the importing period tend to touch their gold import point of

$$\frac{480^2}{(480 + E)\ (1 + I)}$$

at the same time as the spot cable rate reaches its import rate, all three classes of exchange tend to reach their respective import points simultaneously. If the three rates maintain their

parity relationship as they decline below their import points, it does not matter which form of exchange arbitrageurs purchase against the importation of gold, as they will realize the same amount of profit. But if disparity arises between the rates as they fall below their respective import points, it will naturally advantage arbitrageurs to purchase the cheapest form of exchange to offset their gold importations.

Demand Exchange Transacted in Both Centers.—The London market, of course, deals in demand exchange as well as the New York market. There demand exchange consists of the present delivery of London gold against the receipt of a draft calling for delivery of gold in New York upon presentation of the draft in the latter city. London demand exchange is, accordingly, the reverse of demand exchange in New York, and the price it tends to maintain is equal to the price for spot cable transfers on New York discounted at the New York rate of interest for the period in which the draft can be mailed to New York. If D represents this parity rate for demand exchange, C the prevailing spot cable rate, and i the New York interest rate for the mailing period, D equals

$$\frac{C}{(1+i)},$$

and conversely, C equals $D\ (1+i)$.

The specie points for demand exchange on New York in London are determined in a manner analogous to that by which the specie points are fixed in New York for demand exchange on London. With E representing the cost of shipping 480 grains to New York, the gold export point for demand exchange in London is $(480+E)$, which is the parity of the spot cable export rate of $(480+E)\ (1+i)$.[2] In a similar manner if e

[2] In this and the following section, i represents the New York interest rate for the period necessary either to ship gold or mail a draft from London to

represents the expense of importing 480 grains from New York, the gold import rate for demand exchange in London is

$$\frac{480^2}{(480 + e)\ (1 + I)\ (1 + i)},$$

which, again, is the parity of the spot cable import rate of

$$\frac{480^2}{(480 + e)\ (1 + I)}.$$

Demand exchange in each center tends to parity with local spot cables. Inasmuch as spot cables in one city tend to parity with spot cables in the other, it follows that demand exchange in either place tends to parity with both spot cables and demand exchange in the other, for things equal to the same thing or equal things are equal to each other.

Demand Exchange under the Second System of Quotation.—There is yet to be considered the rate for demand exchange in London when exchange quotations are expressed in terms of New York gold, or according to the second system of quotation. As has been pointed out in the preceding section, under the first system of quotation, when the rates refer to London gold and are at parity, D equals

$$\frac{C}{(1 + i)}.$$

But as the ratio expressed by this rate, namely,

$$\frac{480 \text{ grains of New York gold}}{\frac{C}{(1 + i)} \text{ grains of London gold}},$$

is equal to the ratio

New York, while I represents the London interest rate for the period it takes to ship gold from New York to London.

$$\frac{\frac{480^2\,(1+i)}{C}\text{ grains of New York gold}}{480\text{ grains of London gold}},$$

the rate under the second system of quotation is

$$\frac{480^2\,(1+i)}{C},$$

that is to say, the demand parity rate is then equal to the cable price,

i.e., $\frac{480^2}{C}$ under the second system of quotation,

plus interest on it at the New York rate for the mailing period. When exchange rates in New York are expressed by the first method of quotation and those in London by the second method of quotation—that is, when rates in both centers are expressed in terms of New York gold—the spot cable prices in both places tend to an identical figure, as explained in Chapter III; while the demand quotation rules below this figure in New York and above it in London.

Turning now to the specie points for demand exchange in London when quoted in terms of New York gold, we have learned that under the first system of quotation the export point is equal to $(480 + E)$. As the ratio of

$$\frac{480\text{ grains of New York gold}}{(480+E)\text{ grains of London gold}}$$

denoted by this rate is equal to the ratio

$$\frac{\frac{480^2}{(480+E)}\text{ grains of New York gold}}{480\text{ grains of London gold}},$$

the same export rate under the second system of quotation is

$$\frac{480^2}{(480 + E)},$$

which is below the par of 480 grains by an amount equal to the expense of shipping a quantity of gold to New York equal to the rate, as is evident from the following equation:

$$\left(1 + \frac{E}{480}\right)\left(\frac{480^2}{480 + E}\right) = 480.$$

As for the demand import point in London when expressed in terms of New York gold, we have learned that under the first system of quotation it is equal to

$$\frac{480^2}{(480 + e)\ (1 + I)\ (1 + i)},$$

or given in full, to the ratio

$$\frac{480 \text{ grains of New York gold}}{\dfrac{480^2}{(480 + e)\ (1 + i)\ (1 + I)} \text{ grains of London gold.}}$$

As this ratio is equal to

$$\frac{(480 + e)\ (1 + I)\cdot(1 + i) \text{ grains of New York gold}}{480 \text{ grains of London gold}},$$

the gold import rate under the second system of quotation is $(480 + e)\ (1 + I)\ (1 + i)$, or the sum of the following three quantities:

1. The sum of par and the cost of importing 480 grains from New York.
2. Interest on this first quantity at the London rate for the shipping period.
3. Interest on the sum of these two quantities at the New York rate for the mailing period to New York.

Future Demand Exchange.—In our discussion of demand exchange we have been concerned with the spot or prompt variety, the distinguishing feature of which is the immediate payment and delivery of the draft. But this species of remittance is also dealt in for future delivery. Suppose a person has a debt falling due in London 90 days hence. While he can protect himself against an advance in exchange rates during this time by immediately purchasing a future cable transfer maturing in 90 days, he can accomplish the same end by buying at once future demand exchange running for 80 days, assuming that it will take the 10 days following to send the draft to London. At the end of the 80 days, he will pay for and receive the draft, which he will straightway remit to London in discharge of his debt. Thus, future demand exchange consists essentially of the exchange, at a rate fixed in the present, of New York gold delivered at a stated future time, for London gold delivered at the end of the ensuing mailing period.

CHAPTER VI

LONG EXCHANGE

Long Exchange Defined.—The third and last form of exchange, co-ordinate with cable transfers and demand bills, is called "long" or "time exchange." It differs from demand remittance only in that the interval between the New York and London deliveries is longer than in the case of demand exchange, exceeding the time required to remit a draft from New York to London by a certain number of days or months, usually by 30, 60, or 90 days, or by 4, 5, or 6 months. Spot gold is delivered in New York in return for a draft on a party on the other side which calls for the delivery of a stated amount of gold in London at a more or less fixed future date. The draft itself is referred to as "long" or "time exchange," and the rate or price at which it is quoted denotes, under the first system of quotation, the amount of New York spot gold given in exchange for 480 grains of the face amount of the draft, that is, for 480 grains of London gold delivered on the draft when due.

Long exchange for the most part has its origin in merchandise exports. When an American merchant sells a bill of goods to a British importer, it is usually with the understanding that he draw on the importer (or his bank) a long bill of exchange, payable in London, for the invoice value of the merchandise. The bill is generally made out to mature a specified time "after sight," that is, after it has been sent across and been presented to the importer and he has agreed to pay it by writing across its face the word "Accepted" over his signature. The exact period for which the bill is drawn in any particular case depends on the length of the credit the American exporter is extending to his customer. The terms are usually such as to allow the foreign importer ample

time in which to receive and perhaps even to dispose of the goods before the draft matures. But while the shipper thus advances credit, he is by no means obliged to wait for his money returns until the maturity of the bill, as he can reimburse himself immediately, or at any time during the life of the bill, by selling or discounting it either in New York or London.

Methods of Handling Long Bills.—Suppose the bill is a 90-day sight bill for 1,000 ounces. If he follows the usual practice, he makes it out in favor of himself, since by indorsing it in that form he renders it payable to bearer and can, therefore, sell it to the highest bidder, should he desire to dispose of it in advance of maturity. Let us first assume, however, that he has decided to hold the bill until it is due. Under those circumstances he forwards it at the earliest opportunity to his British customer and obtains his acceptance. When accepted the bill has the legal force of a promissory note, and runs thereafter for 90 days.[1] Accordingly, if we suppose that 10 days were required to mail the draft to London, the currency of the bill, or its "tenor" or "usance," as it is sometimes called, will extend for a total of 100 days from the day the bill was drawn.

Receiving the accepted bill, which is now styled an "acceptance," the American shipper holds it until he must mail it again to the other side to present it for payment on the due date. If we take that time to be ten days prior to the bill's maturity, the bill is then obviously equivalent to a demand draft for 1,000 ounces minus the stamp tax of $\frac{1}{2}$ ounce he will pay the British Government. (A tax of $\frac{1}{20}\%$ of the face amount is levied on all bills of exchange of more than 3 days' sight.) He can accordingly dispose of the bill in New York as demand exchange at the prevailing

[1] Debtors in Great Britain are allowed 3 days of grace on their payments, of which they invariably take full advantage, but to avoid awkward calculations in our illustrations, we shall pay no attention to this added period in the present chapter.

rate; or, if he has kept it with an agent on the other side, he can sell his own demand drafts against its coming encashment. In either case he has waited for his reimbursement 90 days from the day he consigned his shipment and drew the bill. Or, if he prefers, he may extend his waiting an additional 10 days until the draft is actually collected, and then sell a cable transfer. But whether he has sold demand or cable exchange, he has run the risk of a loss from a possible drop in the rates of exchange during the 90 or 100 days. He might, however, have guarded against this contingency by selling, as soon as he had issued the long bill, future demand exchange maturing at the end of 90 days, or future cable exchange maturing at the end of 100 days.

An Alternative Procedure.—But the American exporter can ordinarily employ his funds to better advantage than to have them locked up in the long bill. Accordingly, he usually loses no time in reimbursing himself for his merchandise sale by discounting the draft. In actual practice he has no alternative but to sell the draft to a foreign exchange banker in New York, who, in turn, negotiates it in London, the ultimate market for the bill. But inasmuch as we are still leaving the middleman out of account, we shall assume that the exporter is in a position to place his bill directly with a London as well as a New York bank.

Suppose first that he elects to sell his 90-day sight bill in London, and at the same time refuses to enter into any speculative commitment in connection with the transaction. He proceeds in that case as follows: He first has a London discount bank cable him the rate at which it agrees to purchase the draft upon its arrival in London 10 days hence. By this arrangement he protects himself against loss from a possible advance in the London discount rate during the bill's voyage across. The rate pertaining to bills sold thus for forward delivery is commonly known as the rate "to arrive," in contradistinction to the quotation applying to bills for immediate delivery, or the so-called "spot

rate." We shall suppose that the rate "to arrive" which the exporter is offered and accepts by cable for his bill is 3% per annum on the face amount. (For the sake of simplicity we shall follow in the illustrations of this chapter the usual banking practice of figuring interest on long bills on the basis of banker's instead of "true" discount.)

In addition to the interest discount, there will be deducted from the amount of the bill in London the British stamp tax, which for the sake of convenience in computation we shall assume to be $\frac{1}{4}$% of the face amount, or at the annual rate of 1%. To all intents and purposes, then, the bill will be discounted at a total per annum rate of 4%, or the flat rate of $\frac{1}{100}$, making the net amount the exporter will realize 990 ounces. This sum represents, therefore, the amount of demand exchange he can sell in New York immediately he has completed arrangements for the sale of his long bill in London; for his demand draft will be carried to London by the same vessel as his long bill and will be met with its proceeds. If the price he gets for the demand draft is 481 grains, his immediate receipts in New York from his merchandise sale will amount to $992\frac{1}{16}$ ounces. In fixing, therefore, upon the price in London gold at which he should sell his goods, he had to take into account the two factors of the London discount rate "to arrive" for his 90-day sight bill, including the cost of the bill stamp, and the prevailing price for demand exchange.

Upon arriving in London and being accepted by the importer, the 90-day bill is delivered, with the tax stamp affixed, to the bank which has agreed to purchase it at 3% per annum, and the proceeds of the discount, minus the cost of the bill stamp, are applied to the payment of the demand draft when it is presented. Thereupon the long bill either remains in the possession of the bank that has purchased it, or passes from hand to hand as it is rediscounted by successive holders, until the 90th day after its acceptance date (93rd, if the 3 days of grace are added), when the then holder presents it to the importer for payment and receives from

him 1,000 ounces of gold delivered in London. With the retirement of the bill the financing of the merchandise shipment is brought to a close.

Negotiating a Long Bill in New York.—Finally comes the negotiation of the long bill in New York. Of the several ways in which the exporter can deal with the draft, we are primarily interested in this last method, since it represents a transaction in long exchange. In selling his bill in the home market the exporter combines in a single operation the two steps of discounting the bill in London and marketing demand exchange against the proceeds. He executes a direct exchange of gold deliverable in London 90 days after the bill's acceptance for spot gold in New York, and thus eliminates the intermediate step of exchanging London future gold for London spot gold, or the discount operation in London.

Long and Demand Exchange Rates.—The rate at which long bills sell in New York, or the amount of spot gold that can be procured in New York for every 480 grains that will be delivered in London in payment of them when due, will now be discussed. Long exchange tends to parity with demand exchange, and we shall first examine the relationship of their rates when they are thus mutually equivalent.

Assume the same conditions as in the preceding example, namely, 481 grains for demand exchange, 3% per annum for the London discount rate "to arrive" for 90-day sight bills, and $\frac{1}{4}$% for the British stamp tax. Suppose a person in New York has a debt to pay in London, due on the day on which the next mail will arrive from New York, 10 days hence. If he remits by purchasing demand exchange, he will have 480 grains of gold in London for the discharge of his debt against every 481 grains he pays out now in New York. But he may also make the remittance by buying a 90-day sight bill and sending it to London for

immediate discount. The net sum which he will realize, after paying for the bill stamp, will amount to $\frac{999}{1000}$ of the face amount, or 480 grains on every $(\frac{1000}{999} \times 480)$ grains of the face amount. If he should pay for the bill a rate of 481 grains for every $(\frac{1000}{999} \times 480)$ grains of the face amount, it will cost him precisely as much to remit by this means as by the purchase of demand exchange, since, as in the latter case, he will also come into possession of 480 grains in London 10 days hence for every 481 grains he parts with now in New York. But this rate, quoted on the regular basis of the amount of New York spot gold the bill commands per 480 grains of its face amount, is $(\frac{999}{1000} \times 481)$ grains

i.e., $$\frac{\frac{999}{1000} \times 481}{480} = \frac{481}{\frac{1000}{999} \times 480}.$$

Thus the price of the long bill is equal to the demand price of 481 grains discounted for the 90 days the bill runs after its acceptance at a rate which is equal to the sum of the London discount rate "to arrive" of 3% per annum and the British bill stamp rate of 1% per annum.[2]

Parity of Long and Demand Exchange.—Long exchange is, therefore, at parity with demand exchange when its price is equal to the demand price discounted for the period it runs after sight at a rate equal to the London discount rate "to arrive" plus the British bill stamp rate. When this parity relation obtains, the drawer of a long bill secures precisely the same amount of New York funds whether he sells it in New York or in London, so that the two methods of disposing of the bill are mutually equivalent.

The price of long exchange constantly gravitates toward par-

[2] It will be observed that the seller of the long bill bears the cost of the bill stamp, for while the buyer pays for it when he remits the bill to London, he shifts the charge to the seller by allowing him a correspondingly lower price.

ity with the current rate for demand exchange, as any divergence from the parity position automatically sets in motion a process of readjustment which tends to re-establish the equilibrium. To take again the example of the 90-day sight bill and the same parity rate for it of ($\frac{99}{100} \times 481$) grains, suppose that in consequence of a sudden, heavy outpouring of long bills upon the market, the price of the bill is depressed to a discount below this parity rate, let us say to ($\frac{197}{200} \times 481$) grains. Long exchange is now cheaper than demand exchange by ($\frac{3}{200} \times 481$) grains for every ($\frac{99}{100} \times 480$) grains remitted by mail. The difference in the costs will accordingly prompt remitters to purchase long exchange in lieu of demand drafts, and encourage exporters and other makers of long bills to negotiate them in London rather than in New York. Arbitrageurs also will be quick to seize the opportunity for a profit offered by the disturbed relation of the rates. Selling demand bills in New York, they will utilize the proceeds (all but a small balance, which will represent their profit) for the purchase of an amount of long bills which, when discounted in London, will provide sufficient cover for the demand drafts. Their gain on the transaction will amount to ($\frac{3}{200} \times 481$) grains for every ($\frac{99}{100} \times 480$) grains of demand exchange they will sell against the simultaneous purchase of 480 grains of long exchange.

The existence of the disparity between the two rates, then, results in a quickening of the demand and a curtailment of the supply of long exchange, and in a falling off in the demand and an increase in the supply of demand exchange. The rate for long exchange is, therefore, forced up, and that for demand exchange is driven down. As the quotations thus draw closer together, they approach a position of mutual parity. The balance is restored all the more quickly because of the upward tendency imparted to the London discount rate by the heavier offerings of long bills attracted to that city, as the advancing discount rate widens the parity margin between the exchange quotations.

Long Exchange at a Premium.—Turning now to the reverse instance of disparity, in which the rate for long exchange is at a premium above its parity with demand exchange, let us suppose that the prevailing rate for 90-day sight bills is ($\frac{1}{2}\frac{9}{0}\frac{9}{0}$ × 481) grains, while its parity rate is, as before, ($\frac{9}{1}\frac{9}{0}\frac{9}{0}$ × 481) grains. Long exchange is now dearer than demand exchange by ($\frac{1}{2}\frac{}{0}\frac{}{0}$ × 481) grains on a mail remittance of ($\frac{9}{1}\frac{9}{0}\frac{9}{0}$ × 480) grains. Drawers of 90-day bills will, therefore, sell the drafts in New York rather than in London, while remitters will purchase demand exchange rather than long bills. Besides, arbitrageurs will sell in New York 90-day bills drawn on London banks that have agreed to lend them their credit by accepting the bills (see page 95), and at the same time, by way of providing cover for these drafts, they will purchase demand exchange and arrange to lend the London gold they will thus procure for the 90 days the long bills run after sight. Their profit will amount to ($\frac{1}{2}\frac{}{0}\frac{}{0}$ × 481) grains for every 480 grains, face amount, of 90-day bills they sell against the concurrent purchase of ($\frac{9}{1}\frac{9}{0}\frac{9}{0}$ × 480) grains of demand exchange.

Thus when the price for 90-day sight bills is above its parity with demand exchange, the demand for the drafts declines and the supply increases, bringing down their market price. Concurrently, the demand for demand exchange expands and the supply diminishes, forcing up its rate. The two rates, therefore, draw farther away from each other, and in doing so they tend to accommodate themselves to a parity basis. The readjustment is accelerated by the decline which the London discount rate undergoes as a result of the lessened volume of long-bill offerings in that city, since a reduction in the interest rate signifies a contraction in the parity spread between the two exchange prices.

Tending thus to maintain a definite relation to the demand rate, the price for long exchange necessarily moves up and down with the demand price as the latter responds to the changing conditions of supply and demand. But at the same time the

distance it maintains from the demand price increases and contracts as the London rate of discount advances and declines.

Investment Buying of Long Bills.—One particular source of demand for long bills merits special attention. It comprises purchases by those who intend holding the bills till maturity as temporary investments, particularly when the bills can be bought at prices which promise a higher rate of return than can be secured on loans of similar length in New York. One object of making such investments is to anticipate the payment of a debt owed in London and at the same time to avoid the risk of a future advance in the exchange rate. An American importer, for example, who has engaged to pay an English merchant in London on a certain future date, may to all intents and purposes settle his account in advance by buying and retaining a long bill maturing approximately when his own debt comes due. As the payment date draws near, he has merely to remit the long bill to his creditor in satisfaction of his obligation.

When long exchange is purchased for investment purposes, but not to anticipate a debt in London, the buyer will sell demand exchange (or cables) when the bill draws near maturity, by way of transferring his funds back to New York. The rate of return on his investment will manifestly depend upon the price he will get for his demand exchange, as compared with the price he pays for the long bill. To take a concrete case, suppose he purchases a 90-day sight bill at the rate of $(\frac{79}{80} \times 481)$ grains. If towards the maturity of the bill he should sell demand exchange at the rate of 481 grains, the investment will have netted him a return of $(\frac{1}{80} \times 481)$ grains on every $(\frac{79}{80} \times 481)$ grains of his outlay, or slightly over 5% per annum, assuming that just exactly a quarter of a year elapses between his purchase of the long bill and the sale of his demand exchange. If he wishes to eliminate all uncertainty with regard to the rate of his income, he may sell at the outset future demand exchange (or future cables) for delivery 10 days

or so prior to the maturity of the long bill. The yield on his investment will in that case be fixed by the relation of the price at which he sells the future to the price he pays for the long bill. But if future demand and long exchange are at parity with spot demand exchange, and, therefore, at parity with each other, his return will be exactly equal to the rate of interest on loans in New York.

Long Bills as Instruments of Short-Time Borrowing.—By far the greater proportion of long bills comes upon the market from the hands of exporters in the manner already indicated. But there is another quite different source of supply, which on occasion is responsible for no small volume of long bills. It comprises sales by those who draw the bills for the purpose of raising, directly or indirectly, short-time loans in the open discount market in London.

The simplest way in which an American borrower can contract a short-dated loan in the British center is, of course, to discount his plain promissory note. But his single-name paper, no matter how highly it may be rated in the New York market, can only be negotiated in London privately, with the particular institution with which he maintains a regular banking connection. If he wants to borrow in the open London market, he can do so only on a prime British name, which invariably is that of first-class bank or banking house. To secure the use of such a name he enters into an arrangement with his London bank, whereby he is permitted to draw a bill of exchange upon it for the amount and period agreed upon. By accepting the draft the bank engages to pay it at maturity. But it has in turn the American borrower's guarantee, secured by collateral or not, according to his financial standing, to provide it with funds for the amount of the bill a day or two before it falls due. For lending its name in this manner the London bank charges a commission, which varies with the borrower's financial responsibility and the currency of the bill,

and which approximately represents the difference between the rates at which he can borrow on his own and the bank's name. On 60-and 90-day sight bills the charge is generally $\frac{1}{8}$ or $\frac{1}{4}\%$ of the face amount.

Provided thus with an instrument, which when accepted will represent the direct obligation of a prime London bank, the American borrower can now proceed to contract his London loan. As in the case of bills issued by exporters, he has the choice of either forwarding his draft to London for acceptance and immediate discount, and simultaneously selling demand exchange against the prospective proceeds; or of selling it in New York on the strength of his own name and leaving it to the buyer to procure its acceptance in London. The total cost of the loan to him will include the interest discount, the British bill stamp, and the acceptance commission. It should be noted, however, that when he sells the bill in New York he makes allowance in its price only for the first two items, as he pays the acceptance commission himself, remitting it usually when he reimburses the accepting bank on the bill.

Reasons for Issuing Long Bills.—One of the purposes for which an American borrower may desire to issue a long bill on London is to anticipate the payment of money that is due him in that city at about the time the bill matures, particularly if he does not care to run the risk of a future decline in the exchange rate. In a case of this sort he will be able to furnish the London accepting bank with cover for the bill without the necessity of remitting exchange. Frequently, however, he has not in prospect any receipt of money in London, and his only object in putting out the bill is to avail himself of a cheaper interest rate. Under those circumstances he will be able to put the acceptor in funds only by purchasing demand exchange (or cables) toward the expiry of the long bill. It is, therefore, apparent that when he sells the bill in New York, the total charge he incurs on the loan will

amount to the difference between the cost of the demand exchange he will remit to pay the maturing bill and acceptance commission, and the proceeds of the long bill.

To illustrate, suppose he sells a 90-day sight bill in New York at the rate of ($\frac{99}{100} \times 481$) grains, and 90 days later, when he remits cover and the acceptance commission of $\frac{1}{4}\%$, he buys demand exchange at the rate of 481 grains. For the ($\frac{99}{100} \times 481$) grains he realized on every 480 grains of the face amount of the long bill, he now expends ($\frac{401}{400} \times 481$) grains in making the remittance, including ($\frac{1}{400} \times 481$) grains for the acceptance commission. In terms of New York funds, therefore, the 90-day loan has cost him ($\frac{1}{80} \times 481$) grains for every ($\frac{99}{100} \times 481$) grains the bill netted him in New York, or slightly over 5% per annum.

To reduce the risk of a possible big advance in the price of demand exchange pending the maturity of the long bill, which would increase the cost of the loan, unduly, American borrowers in London, if they permit themselves to incur any risk at all, customarily issue their long bills in the late spring of the year, when exchange rates are normally high because of comparatively heavy imports and give every promise of undergoing the usual seasonal decline with the approach of the autumn months, when the grain and cotton export movement gets under way. But if they are desirous of avoiding the risk entirely and fixing at the outset the cost of their borrowing in terms of New York gold, they have recourse to the purchase of future exchange at the time they issue the long bills, for delivery when the bills mature.

Frequently it is agreed in the original contract that the American borrower shall have the privilege of renewing the loan a certain number of times at his option. The renewal is effected on each occasion by the borrower drawing on the London drawee another bill for the same period as the preceding one but for a slightly larger amount, so that when sold in New York it yields a sum sufficient to meet the cost of the remittance made against the maturing bill.

Long Bills Quoted According to Their Security.—Long bills of the same maturity do not sell in New York for a uniform price but at rates which vary with the relative degree of security they represent in the judgment of the purchasers. Their comparative soundness as investments depends upon three elements, namely:

1. The financial responsibility of the American drawers and any subsequent indorsers.
2. The financial responsibility of the foreign acceptors.
3. The nature of the collateral security, if any, underlying them.

Inasmuch as the bills represent virtually the sole liability of the drawers until they are accepted on the other side, those made out by drawers of superior credit command, all other things being equal, higher prices in New York. Upon being accepted in London, they are graded and discounted there on the basis of the relative standing of their acceptors. Hence their price in New York is also affected by the acceptors' financial responsibility. Bills drawn and accepted by banks of the highest standing and reputation enjoy the highest rate and are commonly described as "prime bills."

The financial ratings of the drawer and acceptor are the principal factors determining the relative security of a long bill. If one or the other, or both, are not of the best credit, the quality of the bill may be improved by placing collateral security behind it. Bills issued by exporters against their merchandise consignments commonly have for their collateral accompanying bills of lading, giving holders a lien on the underlying shipments. The measure of security afforded by the ladings depends upon the character of the goods composing the shipment, whether perishable or non-perishable, and whether staple and readily salable, or having a limited market. The condition on which the holder of the draft surrenders the lading to the drawee is arranged at the outset be-

tween drawer and drawee, and the bill is subsequently negotiated on that basis. If the drawee's credit is of the highest, the document may be released to him upon his accepting the draft. Otherwise he is obliged to wait for it until he has paid the draft, but not necessarily until the draft matures, as he may be accorded the privilege of paying the draft in advance. The collateral behind long bills put out by borrowers usually consists of purchased drafts, warehouse receipts, stocks, and bonds.

Formula for Parity Rate of Long Bills.—In deriving the formula for the parity rate of long bills it was tacitly assumed that they were all of the same grade in point of security, and that, therefore, bills of the same maturity sold for one and the same price. It was further assumed that demand drafts sold by the drawers of the long bills were also quoted at a uniform price. As the contrary is true in respect to both of these suppositions, it is necessary in the interest of greater accuracy to restate the formula as follows: The parity rate of any given grade of long bills is equal to the price at which their drawers can market demand drafts, discounted for the number of days the long bills run after sight at a rate that is equal to the sum of the rate "to arrive" at which the bills are discountable in London and the British bill stamp rate.

Quoting Long Bills in Terms of Foreign Gold.—The manner of computing the parity price of a long bill on London when the rates of exchange are denoted by the second system of quotation, or in terms of London gold, must now be briefly considered. Under the first system, when demand exchange is 481 grains, and the discount and bill stamp rates are together equal to 4% per annum, the parity price of 90-day sight bills is $(\frac{999}{1000} \times 481)$ grains of New York gold. But as this ratio of

$$\frac{(\frac{999}{1000} \times 481) \text{ grains of New York gold}}{480 \text{ grains of London gold}}$$

is equal to the ratio

$$\frac{480 \text{ grains of New York gold}}{(\frac{1000}{999} \times 479\frac{1}{481}) \text{ grains of London gold}},$$

it is evident that the parity price of the 90-day sight bill is $(\frac{1000}{999} \times 479\frac{1}{481})$ grains when expressed in terms of London gold. Moreover, since $479\frac{1}{481}$ grains is the demand price given in terms of London gold,

i.e.,
$$\frac{481}{480} = \frac{480}{479\frac{1}{481}},$$

it follows that under the second system of quoting exchange rates the parity price of a long bill is equal to the demand price plus interest on it for the period the bill runs after sight, calculated at a rate equal to the sum of the London discount rate "to arrive" and the British bill stamp rate.

Long Bills Issued in London upon New York.—Long bills are, of course, also issued in London upon New York, and are traded in there in precisely the manner in which long bills on London are dealt in here. The parity price of a long bill in London is naturally governed by the price quoted for demand exchange on New York and the New York rate of discount. As the prices for New York exchange are indicated in London in terms of New York gold or by the second method of quotation, the parity prices for long bills in London are determined in accordance with the formula laid down in the preceding section with reference to parity prices of long bills in New York on London when quoted in terms of London gold.

CHAPTER VII

TRIANGULAR EXCHANGE

Transactions between Two Cities Settled by Payment in a Third.—Having completed the analysis of the principles of gold exchanging as carried on between two cities, we have yet to deal in this theoretical part of our treatise with the manner in which the rates for the exchanges between three or more markets are related to one another. These rates tend constantly to mutual dependence, so that a movement in one cannot take place without more or less affecting the others. In ascertaining the precise nature and cause of this interdependence, we shall take the simple case of the following three cities—New York, London, and Paris. An examination of this triangular or three-cornered exchange, as it is usually called, will reveal the general principles underlying the relationship which the rates for the exchanges between all the markets of the world tend to keep with one another.

A Triangular Example.—Between each two of the above-named three cities settlements are continually being made which call for the delivery of gold in the one or the other. Dealings accordingly take place in each of these centers in exchange on the other two, in the form of cable transfers, demand and long drafts, both for spot and future delivery, precisely as has been explained with reference to exchange between New York and London. Not only, then, is trading conducted in New York in exchange on London and in London in exchange on New York; but in New York, exchange is dealt in on Paris, and in Paris on New York, and in London, exchange is traded in on Paris, and in Paris on London.

Not all the settlements between New York and Paris, however,

are made in either of these centers. To a certain extent they are effected by the delivery of gold in London. Adams in New York, for example, may owe Binet in Paris a debt that he has contracted to pay in London. By way of retiring it he purchases any one of the several classes of exchange on London. If he buys a spot cable transfer he instructs the seller of it to cable the custodian of his gold in London to place the stipulated amount at the disposal of Binet, who is advised at the same time that the gold is held for his account. Thereupon the latter transfers these funds to Paris by selling a cable transfer, demand or long drafts on London, as suits his convenience.

Should Adams purchase, instead, demand exchange on London, he remits the draft to Binet by the first departing mail. Upon receiving the bill Binet disposes of it at once in the Paris market, or sends it immediately to London for collection and sells his own demand or cable exchange against the proceeds. Assuming that Adams was able to give the seller of the draft satisfactory assurances that it would travel to London by way of Paris and not directly, he was charged a lower rate for it than the prevailing quotation for demand drafts forwarded directly to London, because of its later arrival in London and the consequent later delivery of the London gold.

Finally, if Binet agrees to accept payment by drawing a long bill on Adams made payable in London, he sells the draft in Paris, either immediately or at any time during its life; or he holds it to maturity and then sells either demand or cable exchange against its collection. As its due date draws near, Adams purchases a demand draft or a cable transfer on London, if he has not already provided himself with the necessary cover by buying either of these forms of remittance for future delivery. Whatever the form in which Binet accepts payment, he will compute his receipts in every case in the amount of home or Paris gold the sale of the London exchange nets him now or in the future.

Exchange on London thus serves as a medium of payment be-

tween the American and the French metropolis. Indeed, London is chosen for the point of delivery in the settlement of a considerable proportion of international transactions in every quarter of the globe. The fact is alluded to in the common observation that London is the world's financial clearing-house, or money center. For that reason, gold exchanging with London is carried on in most parts of the world on a much greater scale than with any other center, so that London exchange is the premier remittance in the great majority of the foreign exchange markets of the world.

Tendency of Exchange Rates to Triangular Parity.—The most important fact in connection with gold exchanges between three cities is that each tends to be equivalent to the other two taken in combination. When this so-called triangular parity relation obtains between New York, Paris, and London, it matters not whether, for example, New York gold is exchanged directly for London gold by the purchase of London exchange in New York, or the sale of New York exchange in London; or whether it is first exchanged for Paris gold by the purchase of Paris exchange in New York, or the sale of New York exchange in Paris, and the Paris gold is in turn exchanged for London gold by the purchase of London exchange in Paris, or the sale of Paris exchange in London. The same amount of London gold is realized against the surrender of a given amount in New York in either case.

Let us assume a case of triangular parity between the spot cable rates for the three exchanges, the form of remittance invariably employed in three-cornered operations. Suppose the rate in New York for cables on London is 482 grains (of New York gold against 480 grains of London gold), and the rate in Paris for cables on London is 481 grains (of Paris gold against 480 grains of London gold). If at the same time the price for Paris cables in New York is such that 482 grains of New York gold will exchange for 481 grains of Paris gold, remittance to London by means of the

two consecutive exchanges—the purchase of Paris cables in New York and of London cables in Paris—will cost a remitter precisely as much as the single direct exchange of buying London cables in New York. As usually quoted, this rate for Paris cables is $480\frac{480}{481}$ grains, since the ratio of 482 grains of New York gold to 481 grains of Paris gold corresponds to the ratio of $480\frac{480}{481}$ grains of New York gold to 480 grains of Paris gold.

Naturally, with the rates for the three exchanges standing in this relation to each other, the reverse is also true: that a person who desires to exchange London gold for New York gold fares the same whether he sells London cables in New York, or takes the roundabout course of selling in turn London cables in Paris and Paris cables in New York. When the three rates are thus in equilibrium, Paris cables are said to be "at parity" with London cables in New York and in Paris, and their rate is referred to as the "parity" of the rates for the two London exchanges.

Parity Disturbed.—When this triangular equilibrium is disturbed by a change in one, two, or all three of the rates, the readjustment that immediately follows in the demand and supply of the three exchanges operates to restore the balance. To illustrate, suppose that when the rates for London cables in New York and in Paris are respectively 482 and 481 grains, the rate for Paris cables in New York is $480\frac{1}{2}$ grains, or $\frac{479}{962}$ of a grain below the triangular parity of $480\frac{480}{481}$ grains. In that case it costs $\frac{479}{962}$ of a grain more of New York gold to remit $479\frac{1}{481}$ grains to London by purchasing London cables in New York than by purchasing first Paris cables in New York and then London cables in Paris, since the price of $479\frac{1}{481}$ grains of London cables in New York is $480\frac{480}{481}$ grains, whereas only $480\frac{1}{2}$ grains are required to buy 480 grains of Paris cables in New York, which in turn will purchase $479\frac{1}{481}$ grains of London cables in Paris.

The natural consequence of this rate situation is, in the first place, that remitters of funds from New York to London—those

of them that are in a position to do so—will resort to the two consecutive exchanges by way of Paris, in preference to the single direct exchange. On the other hand, since the conversion of $479\frac{1}{481}$ grains of London gold into New York gold will bring $\frac{479}{960}$ of a grain more of the latter if the exchange is accomplished by the sale of London cables in New York than if made by the sale of London cables in Paris and Paris cables in New York, persons making such conversions will be prompted to use the former method. Finally, the disparity of the three rates will induce arbitrageurs to purchase Paris cables in New York and London cables in Paris, and then sell London cables in New York. The third exchange will offset the first two, and leave the arbitrageurs a profit of $\frac{479}{960}$ of a grain of New York gold for every $479\frac{1}{481}$ grains of London cables they buy in Paris and sell in New York.

Thus, when Paris cables in New York are quoted below parity in relation to the other two exchanges, the demand for Paris cables in New York and for London cables in Paris tends to rise and the supply to decline. Their rates, therefore, must needs make for higher levels. At the same time the demand for London exchange in New York tends to diminish and the supply to increase, so that its rate is driven down. In the process of readjustment, the Paris cable parity rate in New York declines and meets the rising market quotation for the same remittance, thus re-establishing the triangular balance.

The same tendency to triangular parity manifests itself in the opposite case of disparity. Assume that when London cables are 482 grains in New York and 481 grains in Paris, the rate for Paris cables in New York is $481\frac{1}{2}$ grains, or $\frac{483}{960}$ of a grain above the parity rate of $480\frac{480}{481}$ grains. It now advantages those who are converting London gold into New York gold to make the double sale of exchange, first in Paris on London and then in New York on Paris, for by so doing they realize $481\frac{1}{2}$ grains of New York gold against every $479\frac{1}{481}$ grains they part with in London, which compares with only $480\frac{480}{481}$ grains if they make the conversion by the

sale of London cables in New York. On the other hand, it is more economical in the same situation of the rates for those remitting from New York to London to purchase London cables in New York than to remit by way of Paris, since they thereby effect a saving of $\frac{4}{10}\frac{8}{0}\frac{3}{0}$ of a grain for every $479\frac{1}{4}\frac{1}{8}\frac{1}{1}$ grains remitted. Then, too, the disparity of the rates leads to arbitraging, which in this case consists of the purchase of London cables in New York and the sale of London cables in Paris and of Paris cables in New York, the profit on the operation being $\frac{4}{10}\frac{8}{0}\frac{3}{0}$ of a grain of New York gold for every $479\frac{1}{4}\frac{1}{8}\frac{1}{1}$ grains of London cables purchased in New York and sold in Paris.

Consequently, when the price of Paris cables in New York rules above parity in relation to the prices for London cables in New York and in Paris, the buying of London cables in New York increases and the selling decreases, with the result that the rate advances. On the other hand, the buying of Paris cables in New York and of London cables in Paris falls off and the selling becomes heavier, so that their prices decline. The eventual outcome of these rate movements is that the Paris cable parity rate in New York rises and meets the declining market quotation for the same remittance, thus bringing the three rates back to a state of triangular parity.

Tendency to Three-Cornered Equilibrium.—The rates for the three exchanges constantly tend, therefore, to accommodate themselves to three-cornered equilibrium. In the course of the readjusting process all are affected, but the greatest variation necessarily takes place in the rate of the exchange possessing the narrowest market and, therefore, most readily responsive to a given volume of buying and selling. In the preceding illustration, for example, the disparity is corrected far more through a fall in the rate for Paris cables in New York, than by an advance in London cables in New York or a decline in London cables in Paris, for, as we have noted, the latter tw

exchanges are considerably more active than Paris cables in New York.

One Rate Determined by Extent of Deviation between Other Two.—From what has been said above it is apparent that when Paris cables are in three-cornered parity with London cables in New York and in Paris, the following equation is true:

$$\frac{\text{London cable rate in New York}}{\text{London cable rate in Paris}} = \frac{\text{Parity for Paris cables in New York}}{\text{480 grains of Paris gold}}.$$

It follows from this that when the London cable rates in New York and Paris are equal, the parity rate for Paris cables in New York is at par. Furthermore, when the rate for London cables in New York is quoted above that in Paris, the parity rate for Paris cables in New York is at a premium. The amount of this premium represents the same percentage of par as the difference between the two London cable rates represents of the London cable rate in Paris. In the opposite case, when the London cable rate in New York is below that in Paris, the parity rate for Paris cables in New York is at a discount, the amount of which bears the same ratio to par as the difference between the London cable rates in Paris and New York bears to the London cable rate in Paris.[1]

The amount of the premium or discount on the rate for Paris cables in New York is limited to a maximum of a little in excess of the cost, including loss of interest, of consigning gold from New York to Paris, or from Paris to New York. Therefore, the London cable rates in New York and Paris can diverge from each other only by a percentage which is slightly greater than the percentage which the gold export premium or import discount on Paris cables in New York is of par. If, for example, the cost and

[1] When four quantities, a, b, c, and d, are in proportion, forming the equation $\frac{a}{b} = \frac{c}{d}$, then $\frac{(a-b)}{b}$ equals $\frac{(c-d)}{d}$, and $\frac{(b-a)}{b}$ equals $\frac{(d-c)}{c}$.

interest loss on a gold shipment from New York to Paris amounts to 4 grains or $\frac{1}{120}$ of par, the London cable rate in New York cannot advance much farther than $\frac{121}{120}$ of the London cable rate in Paris. Likewise, if the cost and interest loss in transporting gold from Paris to New York is 4 grains, the London cable rate in Paris can rise no higher than slightly over $\frac{121}{120}$ of the London cable rate in New York. On the other hand, whether gold will move in either direction between Paris and New York will depend on the relative position of the two London cable rates, which governs the size of the premium or discount on the rate for Paris cables in New York.

In arbitraging against a shipment of gold, let us say, from New York to London, the shipper may effect his offsetting sale of exchange by marketing London cables in Paris and Paris cables in New York, in lieu of selling London exchange in New York. He has recourse, however, to such consecutive selling by way of the French center only in the event that the rate for London cables in New York, even though ruling above its export point, is still below its triangular parity as regards the rates for London cables in Paris and Paris cables in New York.

Alternative Methods of Remitting in Triangular Exchange.— There are several other possible ways by which funds may be sent from New York to London, or the reverse, so far as the three centers considered are concerned. When remittance is made by a single direct exchange, two markets, New York and London, are available for the purpose, the remitter having the choice of either buying London exchange in New York or selling New York exchange in London. If he elects to remit by way of Paris, he has likewise two markets in which to accomplish each of the two exchanges, New York and Paris in the one case, and Paris and London in the other. He has, therefore, at his disposal four different combinations of markets in which to execute the two exchanges, as against a purchase of Paris cables in New York or a sale of

New York cables in Paris, he can either purchase London cables in Paris or sell Paris cables in London. In all, then, the remitter has six alternative methods of forwarding funds from one city to another in triangular exchange. If his transactions are large and he has the necessary facilities for executing triangular exchanges, he keeps careful watch on the rates and chooses the cheapest method. As for the arbitrageur in triangular exchange, he has a total choice of eight ways in which to perform his operations, since, for instance, against the remittance of funds from New York to London via Paris by any one of the four methods, he may either sell London cables in New York or purchase New York cables in London.

Although we have considered the question of triangular parity or disparity from the standpoint of New York-Paris exchange, having taken it to be in the one or the other relationship to the other two exchanges, it must be remembered that parity or disparity of any one exchange to the other two necessarily implies the existence of the same relationship in the case of each of the exchanges as regards the remaining two. In other words, if New York-Paris exchange is at disparity with New York-London and Paris-London exchange, then New York-London exchange is also at disparity with New York-Paris and Paris-London exchange, and Paris-London exchange is at disparity with New York-London and New York-Paris exchange. Hence, with triangular disparity obtaining, the exchange of gold between any two of the three cities, in the one or the other direction, depending on the nature of the disparity, is more advantageously effected by way of the third than directly.

Exchange Effected through Two or More Intermediate Points.—Triangular exchange is a system of indirect remittance between two cities, involving an exchange with an intermediate point. But manifestly, it is also possible to remit from one city to another by means of a series of successive exchanges through

two or more intervening centers. For instance, a remittance from New York to London can be made by purchasing successively cable transfers in New York on Amsterdam, Holland, in Amsterdam cable transfers on Paris, and in Paris cable transfers on London. Remittance by such a circuitous route will naturally be resorted to when better results are obtainable than by a more direct method. A situation can be conceived wherein the same cost is entailed in remitting from one city to any other, whether it is done by a single direct exchange or by a chain of consecutive exchanges through any number of intervening points. Indeed, the rates in the various markets constantly tend to this state of universal parity, as they needs must from the very fact that they are ever tending to triangular parity with each other. The possibility of their ever attaining this general state of equilibrium in actual practice is, however, scarcely conceivable.

As previously noted, London exchange occupies a predominant position in most of the foreign exchange markets of the world by reason of its surpassing all other exchanges in the volume of dealings. On this account, the rates in New York for the exchanges with all the foreign centers other than London are controlled by the relation of the rate for London exchange in New York to the rates for London exchange in those foreign centers respectively, precisely as in the case of Paris cables in New York.

CHAPTER VIII

THE FOREIGN EXCHANGE BANKER

Hypothetical Conditions Discontinued.—The analysis of the principles governing the movements of the rates for the various classes of exchange being completed, the remaining chapters are devoted to the practical phases of exchange operations as carried on between New York and London. The hypothetical conditions assumed in the preceding pages can, therefore, be dispensed with. In lieu of the troy ounce of 480 grains, which under our general supposition was the monetary unit common to both the United States and England, we shall henceforth, except in the one illustration occurring in this chapter, take the two differing units actually in use, the dollar in the United States and the pound sterling in England; and, instead of leaving the foreign exchange banker entirely out of account and assuming that the exchanges were invariably conducted directly between the ultimate buyers and sellers, we shall hereafter permit him to play his wonted rôle as middleman in all transactions.

Function of the Foreign Exchange Bankers.—As the intermediaries through whose hands the vast volume of exchange passes, the foreign exchange bankers constitute the foreign exchange market. They deal with the original sellers and ultimate buyers of exchange, and also with one another. The rates they quote are the regular market prices reported daily in the press and otherwise generally referred to. While exchange dealers are to be found in all the larger cities of the country, they are most numerous in New York, where the great bulk of the nation's exchange business is transacted. A large portion of the dealings in that city represents purchases and sales made by banks hailing

from the important points of the interior. The foreign exchange market of the entire country thus centers in New York, and the rates established in the course of dealings there form the basic quotations on which business is conducted in the minor markets of the other cities.

The foreign exchange banker, standing as he does between those who have occasion to remit to London, and those who have exchange to sell, performs the service of facilitating the entire process of money exchanging with foreign countries. In essence his function is to purchase exchange in whatever amount and form it is offered, whether in the shape of cable transfers, demand or long bills, for spot or future delivery, and to resell it in whatever amount and form it is wanted by remitters and investors. He serves, accordingly, as a general distributing or clearing agent for his buying and selling customers, who are thereby accommodated, with a minimum of delay and trouble, according to their several requirements.

The banker always quotes a double price for each type of exchange, if he deals in them all, one at which he is willing to purchase, and the other, slightly higher, at which he is prepared to sell. The difference between these bid and asked quotations represents the compensation he receives for his service. It requires no mean degree of trading skill and experience on his part to realize this profit, as it is most elusive, owing to the constant shifting of the rates. Nowadays the banker is obliged to operate on a small margin of profit, but as his turnover is usually large, his aggregate earnings usually show a satisfactory rate of return on the amount of capital he devotes to his business.

Business of Foreign Exchange Banking.—It is not the practice of the foreign exchange banker to sell the identical cables and bills he purchases. Instead, he remits whatever exchange he buys to London for collection or discount, as the case may be, and, against the proceeds, markets his own bills and cables. Nor does

he necessarily market his exchange in the form in which he has bought remittances. On the contrary, more often than not, in turning over his purchases, he converts one type of exchange into another, depending upon which will bring him the greatest gain in view of the existing prices for the various classes of exchange and the prevailing interest rates in New York and London. The most common instance of such conversion is the sale of demand bills against the purchase of long bills and their immediate discount in London. By thus turning the exchange he buys into the type most in demand at the moment, the banker enhances his efficiency as a distributing agent and equalizes the demand and supply of each class of exchange.

Foreign Exchange Banker Lends His Credit.—By selling his own bills and cables against his purchases of exchange, the banker extends the use of his credit to his selling customers in the case of spot exchange, and to both his selling and buying customers in the case of future exchange. In this way he promotes exchange dealings. The buyer of spot demand or long exchange makes an advance to the seller. Naturally then, he prefers to make his purchases from a middleman with an established reputation for fair dealing and financial soundness, rather than from anyone with whom he may casually come into contact, of whose moral and financial responsibility he may be totally ignorant. Hence by interposing himself between his buying and selling customers, the banker protects the former against failure on the part of the sellers to make delivery in London, taking upon his own shoulders whatever risk attaches to the purchase of exchange. In the case of a purchase and sale of future exchange, he, in effect, guarantees to both seller and buyer delivery by the one to the other. Of course, he assumes only reasonable risks, but as he is an expert in credits, thoroughly posted on the standing of his customers, he can deal safely with many who on no account would deal with each other.

Bank Balances of Foreign Exchange Banker.—To facilitate his operations, the exchange banker employs a certain amount of capital in the shape of a supply of gold, or rather its equivalent, bank deposits, a portion of which he keeps at home in New York and the remainder of which he carries with one or more bank correspondents in London. These two stocks serve him as working balances. As he purchases exchange, he makes delivery out of his New York balance and receives delivery into his London balance; and vice versa, when he sells exchange, he receives delivery into his New York balance and makes delivery out of his London balance. In the ordinary pursuit of his purely exchange business, his sales approximately offset his purchases, so that his balances in both centers are merely turned over and their amounts remain virtually unchanged, except for his profits or losses. To take the simple case of a purchase and sale of spot cable transfers, suppose a banker buys a cable on London for 1,000 ounces at the rate of 482 grains. He adds 1,000 ounces to his London balance, and pays 1,004$\frac{1}{8}$ ounces out of his New York balance. If a moment later he sells a cable for 1,000 ounces at the rate of 482$\frac{1}{4}$ grains, the sale completely offsets the previous purchase so far as the London deliveries are concerned, and his London balance remains intact, while his balance in New York is increased by $\frac{2}{4}\frac{5}{8}$ of an ounce, the difference between what he receives and pays out, or his profit on the turnover. The banker's daily sales and purchases never, of course, balance absolutely, but whatever excess results one way or the other is only temporary, if he conducts his business on conservative lines and does not indulge in speculation, and it is covered by the balances he carries in the two cities.

The foreign exchange business is principally in the hands of the large banks, trust companies, and private banking firms, which maintain special departments for the purpose, in charge of managers responsible for their success. The managers are assigned a certain amount of capital by the general managements, commensurate with the volume of business they are expected to do, on

which they are charged a certain rate of interest, either the prevailing market rate, or some other rate more or less arbitrarily fixed. Their success is judged by the amount they earn over and above this rate.

"Commercial Business" of Foreign Exchange Banker.—The purely exchange transactions of the foreign exchange banker fall into two classes, commonly designated as his "commercial business" and his "open-market trading." The first of these embraces his dealings with customers and other ultimate buyers and sellers, of which the greatest proportion by far is done with importers and exporters. Bills which exporters draw on overseas importers, or on London banks which accept the drafts in behalf of those importers (see Chapter X), are referred to as "commercial bills," in contradistinction to those put out by banks, which are known as "bankers' bills." As the general credit rating of exporters is not so high as that of banks, commercial bills are marketable for less than bankers' bills, even when drawn on prime London banks. Hence the profits which banks derive from selling their bills against the purchase of commercial bills are primarily due to the superior credit they enjoy. This source of income is the most lucrative of all, especially if they have a numerous clientele which deals with them regularly.

It is the practice of conservative banks, which refrain from entering into speculative commitments, to market at once the exchange they buy. When, for example, they purchase a number of demand bills, they immediately offset them with sales of their own exchange, generally in the form of demand drafts. The two sets of bills are dispatched by the same steamer to London, and balance each other in the accounts carried with the foreign correspondents. If long bills are purchased, they are usually forwarded to London for immediate discount, and demand bills are sold at the same time for the amount of the prospective proceeds. The two sets of bills travel to London together, and the sums

realized from the sale of the long bills go to retire the demand drafts. Where banks carry the long bills they purchase to maturity, and are at the same time unwilling to speculate on the future trend of the spot rates of exchange, they take the precaution of selling future demand (or cables), or long bills drawn on their London correspondents to run for the same length of time as the purchased bills. In marketing their long bills they in reality borrow back from London and transfer to New York funds they have just remitted and invested in London.

Although the bulk of the supply of exchange originates in merchandise exports, only a limited number of banks handle bills growing out of these shipments. They are those which specialize more or less in commercial credits, and are, therefore, in a position to make accurate appraisals of the security represented by commercial bills. From these purchases they supply remitting customers with exchange, and the balance they dispose of in the open market to banks which experience an excess demand from customers. In this manner the commercial exchange, which comes upon the market through the hands of a comparatively few banks, is distributed and the demand for remittance is satisfied in every quarter.

Open-Market Trading.—In addition to their dealings with customers, banks carry on a considerable business in exchange with each other. In this open-market trading they not only work off whatever surplus supplies of exchange they may have on their hands as a result of their purchases from customers, or satisfy any excess demand they may experience from remitting clients, but they also take advantage of rate fluctuations to make quick "turns," including any existing disparities in the rates for the various forms of exchange, whether in New York, or as between New York and London, or any other center. These interbank dealings are conducted on a wholesale scale, being for large, round amounts, and they represent no small proportion of the total ex-

change transactions. The profits they yield are the result of shrewd trading, and not of any differences in credit between the buyers and sellers, as in the case of the commercial transactions, for they are mainly conducted between prime banks, whose bills and other forms of exchange are quoted on an equal footing. To a certain extent first-class banks also purchase the cheaper exchange put out by banks of inferior standing, but such transactions are more properly classed with commercial dealings. The sales or purchases of exchange which banks make against gold shipments in and out of the country are usually effected in the open market.

Financial Operations of Foreign Exchange Banker.—Closely related to the foreign exchange banker's exchange business proper are what may be termed his financial operations. These consist of lending for short periods a portion of the balances he carries in the two cities, including the transfer of a portion from one city to the other for this purpose. His choice of the particular market in which to make such advances will depend upon the relative position of the prices quoted for spot and future demand or cable exchange. If future exchange is ruling at absolute parity with spot exchange, funds temporarily transferred from one city to the other and loaned there will yield precisely the same rate of return as they would in the first market, regardless of how the interest rates of the two cities may compare, provided the banker refuses to incur any speculative risk and accompanies the transfer with an offsetting sale or purchase, as the case may be, of future exchange. If in such an exchange rate situation the banker is carrying greater balances than the volume of his exchange business will probably require in the next few weeks or months, he makes no transfer, but lends his surplus funds out in the markets where they happen to be.

When futures on London are selling above their parity with spot exchange, the banker finds it more remunerative to remit and lend in London any surplus balance he may happen to have in

New York; and this he may do by merely purchasing long bills on London in New York. If the disparity in the rates persists and is of sufficient proportions to make it worth while, he may even borrow additional sums from the general management of the bank for similar investment in London. On the other hand, if future exchange is quoted under parity with spot exchange, it will advantage the banker to recall and invest in New York loans the unemployed part of his London balance. He may even borrow in London to lend in New York, either by obtaining straight advances from his correspondent, or by drawing long bills on the correspondent and selling them in the one or the other city.

Miscellaneous Activities of Foreign Exchange Banker.— The foreign exchange banker performs sundry other services for his clients, in addition to those explained above, for which he charges special commission fees. These services in the main comprise the extension to importers of what are known as "acceptance credits," to be examined in a later chapter (Chapter X), or of making arrangements with his London correspondent for their extension in that city; also the collection of drafts on foreign importers which are not of a quality to warrant their purchase, owing to the unsatisfactory standing of the drawers, and the sale to exporters of credit information concerning foreign buyers.

In prosecuting his various activities the exchange banker requires the services of his London correspondent to no small degree. For this assistance he pays the London bank some remuneration, the amount of which is fixed by a standing arrangement concluded between them. In former years it was customary for London correspondents to charge American banks a commission for handling their accounts, which was proportioned to the volume of bills they cleared. Nowadays, however, far from having to make any such payment, American banks are actually allowed interest on their London balances. For such special services as the collection of drafts, commissions are paid London banks now as before.

CHAPTER IX

STERLING CABLE AND DEMAND EXCHANGE IN PRACTICE

Only Pre-war Conditions Considered.—We have assumed that the American and British monetary systems operated in strict conformity with the gold-standard principle, and that New York and London bank deposits were absolutely equivalent to corresponding amounts of gold. This, of course, actually was the case prior to the outbreak of the war. During the conflict, however, the gold standard was compromised in both countries by the restrictions their governments were forced to place on gold exporting, and this was reflected in the abnormally low rates to which London and New York exchanges fell in neutral centers. At the moment of writing the rate situation is still extremely irregular so far as London exchange is concerned, and promises to remain so for a number of years to come. We shall, however, pay no attention to these abnormal conditions in dealing with the practical aspects of exchange, but shall revert to the period before the war, when normal quotations prevailed for exchange between New York and London.

The American Monetary System.—Before proceeding to discuss the manner in which business is actually conducted in the New York exchange market, we shall briefly examine the essential features of the monetary systems in the United States and England, that we may see precisely why bank deposits in those countries are normally equivalent to gold. We shall consider the American system first.

The American monetary unit, the dollar, consists of 23.22 grains of gold. But contrary to the strict interpretation of

the gold-standard principle, certain demand obligations of the government, as well as gold coin, are full legal tender so far as private debts are concerned. These obligations include the United States notes or greenbacks, the Treasury notes of 1890, and the silver dollars. Moreover, while the government is expressly bound by law to redeem in gold the two note issues, and to maintain for the purpose a special reserve of the metal, it is not compelled by any similar statutory provision to honor its silver dollars in gold. Unless, then, payment of gold is specifically stipulated, creditors may be forced to accept from their debtors government money the legal character of which is left somewhat in doubt.

This defect in the legal status of the silver dollars is, however, of no practical effect, as it is virtually corrected by the Gold Standard Act of 1900, which imposes upon the government the duty of maintaining at all times the parity or equivalence to gold of all forms of its obligations passing current as money. By this provision, whenever its currency notes and subsidiary coins (including the silver dollars) fall to a discount below parity with gold, the government must take immediate steps to restore that equivalence. This it can accomplish only by freely paying out gold for the full face amount of whatever obligations are presented for payment. The necessity for such action, to be sure, will occur only on the rare occasions of acute financial crises. Even in ordinary periods, however, little difficulty is experienced in procuring gold for the face amount of the silver dollars in the comparatively few instances when it is wanted. Therefore, the coins may be considered as readily convertible into gold as the United States notes and the Treasury notes of 1890, and in consequence all debts in the United States are payable in gold, either directly at a place specified in the contract, or indirectly, through the legal tender demand obligations of the government, at the Treasury in Washington, or at one of the nine subtreasuries located in the principal cities of the country.

Of the total stock of gold in the country available for the ultimate redemption of debts in case of necessity, the major part is concentrated in the United States Treasury and the subtreasuries. Most of the remainder is lodged in the twelve federal reserve banks, while a comparatively small amount is scattered among the thousands of ordinary banks. But even the portion held by the government is owned for the most part by the federal reserve institutions, since they hold the bulk of outstanding gold certificates, which are but warehouse receipts for corresponding amounts of gold entrusted to the government's keeping. These regional banks are, therefore, the central gold reservoirs, which are drawn upon, when the metal is wanted in any quantity, through banks that carry deposits in the reserve banks as members of the Federal Reserve System. An intending exporter of gold in New York, for example, procures the metal from the New York Federal Reserve Bank by cashing a check which he secures from his bank. He is paid either in gold or gold certificates. If he receives certificates, he presents them at the local subtreasury and obtains gold coin; or applies to the local assay office and secures gold bars. It is perfectly evident, therefore, that a New York bank deposit is equivalent to spot gold delivered at the bank's office; or, more likely, at the neighboring federal reserve bank, subtreasury, or assay office, but in any case in New York.

The British Monetary System.—The monetary system in England is constructed on simpler lines than the American system. The law defining the British monetary unit, the pound sterling, provides that one troy ounce, eleven-twelfths fine, shall be coined into £3, 17 shillings, and $10\frac{1}{2}$ pence, thereby making the pure gold content of the pound equal exactly to $113\frac{1}{22}$ grains. Prior to the war only gold coin and Bank of England notes comprised the full legal tender money of the realm. Since the early days of the conflict, however, the govern-

ment has issued for general monetary use its own demand obligations, styled "currency notes," which it has endowed with the full legal tender quality. The bank notes are redeemable only in gold, and, indeed, are virtually nothing more than receipts for actual gold deposits in the bank, since beyond a practically fixed amount, now standing at £18,450,000, the institution is authorized to issue its notes only against the deposit, pound for pound, of gold in a separate department, known as the "Issue Department." The currency notes are also redeemable exclusively in gold, and for that purpose the government maintains a special reserve stock of the metal in the custody of the Bank of England. Thus, every obligation in England to pay pounds sterling is payable in gold upon the insistence of the creditor, directly at a designated place, or, through the medium of the bank and currency notes, at the Bank of England. Hence, deposits in London banks are in normal times equivalent to corresponding amounts of spot gold delivered at their offices or at the Bank of England, that is to say, in London.

Sterling and Dollar Exchange.—In passing to a consideration of the practical operations in New York-London exchange, it is first necessary to define the manner in which the terms "sterling exchange" and "dollar exchange" are commonly used. In allusion to the fact that London bank deposits and bills on London are expressed in terms of the British monetary unit, London exchange is more frequently referred to as "sterling exchange." The phrase, however, lacks precision, since it may be applied with equal propriety to bank deposits in any British city. Still, as banking in England is centralized in London to such an extent that practically all the principal banks of the country maintain their head offices in that city, if British funds are used in the settlement of international indebtedness, it is almost invariably London deposits. Hence, unless otherwise stated, sterling exchange is understood to have reference to London funds.

In the same manner New York exchange is more often alluded to as "dollar" or "American exchange," but these expressions are open to the same objection as the term "sterling exchange," since they can likewise be applied to bank deposits in any American city. Nevertheless, since the major part of the exchanges between London and this country are executed with New York, "dollar" or "American exchange" usually means New York exchange. In the following pages "sterling exchange" and "dollar exchange" will be taken to refer exclusively to London and New York exchange, respectively.

Rates Expressed in Dollars in Both Cities.—The New York market always quotes the rates for sterling exchange in terms of dollars to the £1 sterling. A rate of $4.86 (commonly expressed without the dollar sign) means simply that 112.8492 grains (4.86 × 23.22) of New York gold will exchange for £1 sterling, or $113\frac{1}{6}\frac{1}{2}\frac{1}{3}$ grains of London gold. As the gold content of $4.8665 is equal to that of £1 sterling (4.8665 × 23.22 = approximately $113\frac{1}{6}\frac{1}{2}\frac{1}{3}$), a rate of $4.8665 indicates that New York funds are exchanging for London funds on even terms, and the figure, accordingly, represents the par of exchange between the two centers.[1]

As the rate for sterling exchange is expressed in domestic gold, or, according to what we have designated the first method of quotation, an advance in the figure above $4.8665 signifies a premium on the exchange. If, for example, the rate is $4.88, $113\frac{1}{6}\frac{1}{2}\frac{1}{3}$ grains of London gold is exchangeable for 113.3136 grains (4.88 × 23.22) of New York gold, or at a premium of .312 of a grain. On the other hand, when the rate is ruling under $4.8665, $113\frac{1}{6}\frac{1}{2}\frac{1}{3}$ grains of London gold exchange for less than that amount of New York gold, and the rate is accordingly at a discount. If

[1] The par of exchange between New York and London may also be denoted by the fraction of £1 sterling equivalent to $1, which is £.20549 (.20549 × $113\frac{1}{6}\frac{1}{2}\frac{1}{3}$ = approximately 23.22).

the rate is \$4.85, 113$\frac{1}{6\frac{1}{2}\frac{1}{3}}$ grains of London gold will bring only 112.617 grains (4.85 × 23.22) of New York gold, which represents a discount of .3846 of a grain.

Moreover, London dealers quote dollar exchange in dollars or New York funds. The rates being thus expressed in foreign gold, or according to the second system of quotation, New York exchange commands a premium when the figure by which its rate is indicated falls below the par of \$4.8665, and sells at a discount when the figure advances above \$4.8665. Thus, when the rate is \$4.85, it takes 113$\frac{1}{6\frac{1}{2}\frac{1}{3}}$ grains of London gold to obtain 112.617 grains of New York gold, which is then at a premium. Contrariwise, when the rate is \$4.88, 113$\frac{1}{6\frac{1}{2}\frac{1}{3}}$ grains of London gold command 113.3136 grains of New York gold, which is then at a discount.

Since both places quote their exchange rates in terms of New York funds, their cable rates, which, as we have seen, constantly make for equality, tend to be expressed by the same identical figure. Thus, when sterling cables in New York are ruling at \$4.86, the rate for dollar cables in London likewise tends to be \$4.86, at which price 112.8492 grains of New York funds exchange for 113$\frac{1}{6\frac{1}{2}\frac{1}{3}}$ grains of London funds in both markets.

As for the figures denoting the demand rates in the two centers, that in New York always rules below the cable quotation, since it refers to local funds and, therefore, tends to be equal to the cable rate discounted at the London rate of interest for the current mailing period (see page 73). If, for instance, the cable rate is \$4.86 and the London interest rate is 4% per annum, while the voyage to London by the next mail steamer is 10 days long, the demand parity of the cable rate is \$4.8546, which quotation signifies that 112.7238 grains (4.8546 × 23.22) of New York funds paid now, exchange for 113$\frac{1}{6\frac{1}{2}\frac{1}{3}}$ grains of London funds, paid when the next mail is delivered in London.[2]

[2] In actual practice interest is figured on the basis of the full year of 365 days.

It was customary before the war, however, for dealers to quote demand exchange, as well as cables, in regular variations of $\frac{1}{16}$ of a cent, as \$4.86$\frac{1}{16}$, \$4.86$\frac{1}{8}$, \$4.86$\frac{3}{16}$, etc., or in variations of .05 of a cent, as \$4.8605, \$4.8610, \$4.8615, etc. The demand rate in the preceding example would in practice be taken to be the nearest quotable variation, or \$4.8545.

On the other hand, the figure representing the demand rate for dollar exchange in London is always above that for cable transfers, since the demand parity of the prevailing cable rate there is equal to the cable quotation plus interest at the New York rate for the time it will take the next mail steamer to deliver drafts in New York (see page 83). If the cable rate is \$4.86, the annual interest rate in New York 6%, and 10 days are required at the moment to send mail to New York, then the demand parity of the cable rate is \$4.8680, or to express the full ratio in terms of grains, 113$\frac{1}{32}$ grains of London funds paid now, against 113.035 grains (4.8680 × 23.22) of New York funds paid 10 days later.

Trading in Cable Transfers.—In dealing with the practical features connected with trading in cable and demand exchange in the New York market we shall begin with the cable transfer, the simpler of the two classes of remittance. A simple case will illustrate its operation. Suppose bank *A* in New York, whose London correspondent is bank *C*, purchases from bank *B* in New York, whose London correspondent is bank *D*, a spot cable for £10,000 (2,354 ounces, 90 grains of London funds), paying for it a rate of \$4.86, or a total of \$48,600 (2,351 ounces, 12 grains of New York funds). Sometime in the course of the day, bank *B* dispatches a cablegram to bank *D* directing it to pay bank *C* for account of bank *A*, £10,000 out of its (*B's*) balance. But as London time is a little over 5 hours in advance of New York time, the message does not reach London early enough to be acted upon on the day it is sent, and the payment is in consequence

deferred until the next day. On the other hand, bank *A* does not pay for the transfer in New York until it has received on this second day cable confirmation from its London correspondent that the £10,000 has been paid into its account. Thus payment of the funds in the two cities in the case of a cable transfer is not made until the day following the conclusion of the contract.

While this is the regular way in which New York banks settle contracts in spot cables with each other, purchases of this remittance are occasionally made by them for "cash" or immediate payment in New York. For thus anticipating the ordinary day of payment, the buying bank is allowed a day's interest by being charged a correspondingly lower rate. Such cash transactions ordinarily take place when the selling bank wants funds in New York and finds a purchasing bank willing to accommodate it on those terms. They are the rule on days preceding holidays in New York, when payment on the following day is precluded by the suspension of business. But where the buyers are other than banks—importers for instance—the selling bank requires immediate payment at the rate applying to transactions settled in the regular way between banks.

Aside from these cash dealings, no distinction is made in the market between the spot cables sold by the various banks, or between bankers' cables on the one hand, and commercial cables sold by importers and other non-dealers, on the other. "A cable is a cable," as the saying goes, and all command the same rate. For unlike sight or long bills, which are graded with reference to the standing of the drawers and are quoted accordingly, the element of credit does not enter into spot cable transactions, since the buying bank does not part with its funds in New York until it has been advised by its London correspondent that the exchange it purchased has been paid into its account.

Trading in Demand Exchange.—In demand exchange, trading in the drafts is necessarily for successive mail-carrying steam-

ships, which sail for England at intervals of several days. Most of the dealings are for the "mail," or the liner which will deliver the drafts first on the other side. By the practice of the market sellers do not deliver the drafts until the day before the mail sails, and receive payment on the day of its departure. If the mail leaves on a Sunday or a holiday, trading is done for cash the day before. While this rule of settlement applies as between banks, and in respect to large, well-known importers, other buyers of less satisfactory standing pay for and receive the drafts when the bargains are closed, regardless of the time the mail sails, and are allowed no interest for their prepayments.

As a precaution against their loss by the sinking of the vessel which is to carry them, demand drafts are made out in duplicate, and the two parts, which are known as "the first of exchange" and "the second of exchange," are forwarded by different steamships. If the original, which is dispatched by the fastest mail, reaches its destination and is paid, the duplicate becomes void; otherwise it replaces the original. By the same vessel which carries the "first of exchange," the selling bank transmits to its London correspondent an advice of its having sold the draft. In accordance with the universal custom of London banks, the correspondent charges the account of the New York drawing bank immediately upon receipt of the advice, irrespective of whether it has cashed the draft as yet or not. If the arrival of the steamship on the other side is delayed beyond the scheduled time, the resulting interest loss is borne by the remitter of the bill. It is the chance he is compelled to take in purchasing the exchange.

As soon as the mail for a particular steamer has closed, trading immediately commences for the vessel that will deliver mail in London next. Delivery of the drafts is again made the day before the vessel's departure, and payment on the day it sails. The process is repeated with the sailing of each fast mail steamer. Unless counteracted by a change in the London

interest rate, the price of demand exchange rises and falls in relation to the cable quotation with the speed of the successive mail-carrying vessels. Not infrequently business is done in demand exchange for the slower mails, at rates slightly lower than the mail rate.

At times, demand exchange is sold between banks for cash or immediate payment, regardless of the time the next mail sails. In such cases the selling bank allows the buying bank a deduction from the ruling rate, as interest for the few days' payment is anticipated. Transactions of this sort take place when buying banks wish to make a few days' investment, and the selling banks desire immediate funds in New York.

Standard Quotations and Speculative Risks.—Demand exchange is quoted variously at any one time, depending upon the standing of the drawers of the bills, but the standard quotation, regularly published in the daily press, is the one pertaining to large transactions in prime bankers' bills, generally running in amount from ten to several hundred thousand pounds sterling. Bills of the smaller dealers sell for .05, .10, or .15 of a cent under the current rate for the highest grade drafts, according to the market's estimate of their drawers' credit. Commercial demand bills, issued by exporters and others who are not exchange dealers, are also quoted lower than prime bankers' bills.

To avoid taking speculative risks, conservative banks usually lose no time in selling the exchange they purchase. Demand exchange, however, lends itself as a convenient medium of speculation over a period of several days for banks which pursue a less cautious policy, as it does not necessitate the locking up of any capital. If the next mail's departure is a few days off, and the banks anticipate an advance in the demand rate, they purchase demand exchange and subsequently cancel their commitment by selling their own bills for the same mail. If they count on a decline in the rate in the next several days, they sell their

bills and later purchase cover in the shape of demand bills, which they remit by the same steamer. Should they subsequently care to extend the period of their speculation, they wait until the mail is due in London and then sell spot cables, if they have purchased demand exchange; or purchase spot cables, if they have sold demand exchange.

"Swapping" Demand Exchange for Cables.—Banks occasionally execute with each other direct exchanges of demand bills for cable transfers, which in the parlance of market traders are termed "swaps." A bank with a surplus of London funds temporarily on its hands, and, therefore, in possession of a supply of cables, may want to invest them for the mailing period by acquiring demand bills in their places. While it can procure the bills by means of two consecutive exchanges, the sale of cables and the purchase of demand exchange with the proceeds, it will ordinarily prefer the single direct exchange.

"Swapping" consists of the exchange of spot London gold for future London gold deliverable at the end of the current mailing period. It is, therefore, in reality a London loan contracted between parties residing in New York. The swap is made on the basis of the prevailing rates for the two forms of exchange. The amounts exchanged are equal, and the owner of the demand exchange pays the owner of the cable the difference between the rates, which represents interest at the London rate on the loan, converted into New York funds. To take an example, suppose bank *A* swaps with bank *B* £10,000 of demand exchange for a similar amount of cable transfers, on the basis of $4.85 for demand exchange and $4.8550 for cables. In addition to delivering £10,000 of demand bills, bank *A* pays bank *B* $.005 per £1 exchanged, or $50 in all.

In the same manner, prime demand bills are swapped for demand bills selling for lower prices, whether bankers' or commercial. The transaction consists, in this case, of the exchange

of two London loans, both running for the time it takes to mail the drafts to London, and one bearing a higher interest rate than the other. Here again the amounts exchanged are the same, and the difference in the interest rates is settled in New York. Thus, if a prime bill for £10,000 is swapped for a lower grade bill of the same amount, on the basis of $4.8510 for the former and $4.85 for the latter, the drawer of the second-rate bill pays the drawer of the prime bill $.001 per £1 exchanged, or $10 on the entire swap.

Gold Shipments.—Coming now to the specie points, the maximum distances the rates for cable and demand exchange can move, above and below the par of $4.8665, are fixed by the cost of exporting and importing the precious metal, including whatever interest loss is suffered on the shipments. Moreover, as the sterling rates in New York pass beyond their export points, the dollar rates in London tend to fall below their import points, and vice versa. While consignments may, therefore, be undertaken concurrently by banks in both centers, it is generally New York institutions which are responsible for the movements of the metal, as is natural in view of the fact that New York is the broader market of the two for the exchange of New York and London funds, and normally dominates the London market. Ordinarily not more than a half-dozen New York banks participate in a gold movement, and while as a rule they act individually, they sometimes enter into joint-account arrangements with their London correspondents and share with them the profits of the shipments.

A bank may offset a shipment of gold to London with a sale of demand exchange, spot cables, or future cables, as previously noted, while against an importation of gold it may buy demand exchange, discountable long bills, spot cables, or future cables. For a practical illustration of the manner in which it computes the profit it can realize on a transfer of the metal, the case of an

export shipment made against the sale of demand exchange will suffice. An example of such a transaction is presented in the table below. The first part of the table includes the amount of the shipment and the various charges the bank incurs on it in New York, the total representing the amount of New York funds the bank devotes on all accounts to the consignment. The second part sets forth the several items of expense the bank will be put to in London and the net amount it will realize from the shipment after paying these expenses, which represents the volume of demand bills it can sell when it makes the consignment.

TOTAL AMOUNT OF NEW YORK FUNDS DEVOTED TO SHIPMENT

		Grains
Amount exported in bars	$1,000,000.00	23,220,000
Interest at 5% for 2 days	273.97	6,361
Assay office premium on bars, $\frac{1}{20}$%	500.00	11,610
Packing, cartage, etc	50.00	1,161
Freight, $\frac{1}{10}$%	1,000.00	23,220
Marine insurance, $\frac{1}{20}$%	500.00	11,610
Amount and cost of shipment in New York	$1,002,323.97	23,273,962

AMOUNT OF SHIPMENT NETTED IN LONDON

		Grains		Grains
Total shipment			£205,486.48	23,220,000
Discount in market price $\frac{1}{8}$%	£329.51	37,271		
Interest at 4% for 3 days on 10% of shipment	6.75	763		
Miscellaneous expenses	120.00	13,560		
Aggregate deducted from shipment			456.26	51,594
Amount netted in London			£205,030.22	23,168,406
Amount realized on sale of £205,030.22 of demand bills at $4.8910			$1,002,802.80	23,285,081
Amount and cost of shipment in New York			1,002,323.97	23,273,962
Profit realized			$ 478.83	11,119

Several items in the above table require some explanation. The 2 days' loan in New York represents the loss of interest on the consignment while it is being prepared for shipment, as the proceeds from the sale of the demand bills are not available until the day of the vessel's departure. For the gold bars the bank secures from the assay office it pays a premium of 50 cents per $1,000. In other words, the bank must surrender claims upon the government for 23,231.61 grains to obtain 23,220 grains in the bar form. While no similar charge is made for gold coin by the subtreasury, nevertheless the bank prefers bars to coin, since the loss resulting from the export of the latter, due to their abraded condition, is generally greater than the premium charged on bars.

Final Disposition of Gold Shipment.—On its arrival in London the metal is sold (exchanged for a London bank's promise to pay gold on demand) at a slight discount to compensate the buyer for the loss of interest he sustains during the few days it is being minted into sovereigns. The rate of discount allowed varies with the state of competition in the gold market, but in no event can it exceed $\frac{1}{6\,3\,3}$, as the Bank of England is compelled by law to purchase at no greater discount all the gold it is offered.[2] Furthermore, as the buyer of the metal customarily advances only 90% of the purchase price until its comparative fineness is verified by approved London assayers, the New York shipping bank is obliged to secure in the meantime a loan for the balance from its London correspondent, in order to protect the entire amount of demand bills it has sold against the shipment.

According to the table, on a shipment of $1,000,000 (23,220,000 grains) the bank incurs charges in New York totaling $2,323.97 (53,962 grains). It, therefore, devotes in all

[2] The law provides that the bank shall pay no less than £3, 17 shillings, 9 pence for an ounce of gold eleven-twelfths fine, that is, for £3, 17 shillings, 10½ pence of British standard gold.

$1,002,323.97 (23,273,962 grains) to the consignment. The several expense items it will pay in connection with the shipment in London are computed at £456.26 (51,594 grains). This sum deducted from the amount of the consignment will leave an available balance in London of £205,030.22 (23,168,406 grains), which represents the amount of demand bills the bank can sell against the shipment.

Should the bank receive $1,002,323.97 for this amount of demand exchange, which means a rate of $4.8887, it will come out even on the transaction, neither making a profit nor suffering a loss. Under the conditions assumed, then, $4.8887 is the gold export rate for demand exchange. Suppose, however, the market rate is ruling above this specie point, and the bank succeeds in selling the £205,030.22 of demand exchange at an average rate of $4.8910. Its receipts will total $1,002,802.80 (23,285,081 grains), or $478.83 (11,119) grains in excess of the amount and expense of shipment. This latter amount represents its profit. To sum up the transaction in terms of grains, by shipping 23,220,000 grains of gold, and at the same time receiving 23,285,081 grains in New York in exchange for the 23,168,406 grains the shipment will net it in London, the bank will realize a profit of 11,119 grains in New York.

Future Sterling Exchange.—In another chapter (see page 55) it was shown that the supply and demand for future exchange emanated, first, from those who were to receive or make payment in London at a certain future time, and secondly, from speculators. It may now be noted that foreign exchange bankers also can create an original demand or supply of future exchange by converting futures into spot exchange, or conversely. Such conversions consist of arbitrage operations between the two species of exchange, and are, of course, undertaken only when the spot and future rates are at disparity with each other and afford arbitrageurs an opportunity for making a profit.

To take the simple case of a conversion of sterling future cables into sterling spot cables; suppose the spot price is $4.86 and the price of a future running for one month is $4.8650, while interest for this period is at the per annum rate of 6% in New York and 4% in London. Under these circumstances the future parity of the spot price is $4.8680, or the sum of the spot price and interest thereon at the New York rate for the period of the future, discounted for the same period at the London rate of interest (see page 59). The situation is one, therefore, in which the prevailing future rate is below parity as regards the spot cable rate, and the disparity, accordingly, makes profitable an arbitrage operation between the sale of spot cables and the purchase of future cables (see page 61).

Assume now that a banker sells spot cables to the amount of £10,000, against a 1-month loan he contracts in London for that amount; and that he purchases at the same time as cover for the principal and interest a 1-month future cable for £10,033⅓. At the rate of $4.86 the sale of the spot cable nets him $48,600, which sum he lends for a month, or until payment on the future cable is due. At the end of that time he will receive $48,843 and pay out $48,812.17 (10,033⅓ times $4.8650). His profit will amount to $30.83.

It is thus apparent that owing to the actual future rate being below the future parity rate the banker can profitably convert future cables into spot cables and thereby create an original demand for futures. In the reverse case of disparity between the two rates when the ruling future rate is above the future parity rate, he has the opportunity of making the opposite conversion, the sale of futures against the purchase of spot exchange, and thereby creating a supply of futures. Not infrequently the sale of the one and the purchase of the other form of exchange is made with the same party on a single contract. In this case the conversion is known as a swap.

CHAPTER X

COMMERCIAL AND BANKERS' LONG STERLING BILLS

Financing Exports by Long Sterling Bills.—Long sterling bills of the commercial variety, originating in merchandise exports, differ from each other in maturity, security, and the manner in which they are handled, being adapted in every case to the conditions of the particular transactions giving rise to them. In some established export trades carried on by large firms of recognized standing, however, certain standard types of drafts have been evolved to meet the general requirements of the trades. Probably the most representative of these is the cotton bill drawn against shipments of that staple, which normally constitute the largest single item in the total export commerce of the country. A cotton consignment is well suited, therefore, to exemplify the general manner in which exports are financed by means of long sterling bills.

The Cotton Bill.—The cotton bill is usually drawn at 60 days' sight. But as British law allows debtors 3 days of grace, the bill is actually payable 63 days after it is accepted. Accordingly, if in a given instance it requires 15 days for the bill to reach the British drawee after it leaves the hands of the American drawer, the buyer of the cotton is extended credit for a total of 78 days. Within this time he may receive and even dispose of the consignment.

The bill is usually drawn not against the British importer himself, but against his London bank, which engages to lend him its credit by accepting the draft in his behalf. In making this arrangement he is said to establish an acceptance or reim-

bursement credit in favor of the American shipper. The agreement he enters into with the bank stipulates the various conditions under which the credit may be used—the amount the bill is to be drawn for (the aggregate amount, if several bills are to be drawn under the one credit against as many shipments), its maturity, the time within which the shipment must be made and the draft drawn, and the documents which are to accompany the bill, such as the bill of lading, the marine insurance certificate, the shipper's invoice, and any other papers that may be required. The contract also contains an engagement on the part of the British importer to furnish the bank, several days before the bill's maturity, the funds necessary to meet it.

Before an American bank will purchase the cotton bill from the exporter, it will want to be assured that the London drawee bank has consented to accept the bill. Generally speaking, there is no difficulty on this score in the cotton export trade, since the business is for the most part in the hands of large, responsible firms, well known to the banks, and their implied word when offering the bills for sale is sufficient guarantee that the London banks will honor the bills with their acceptance. Hence all the British importers need ordinarily do, when arranging their cotton purchases, is to cable the American vendors the names of the London banks they are to draw against for their reimbursement.

The Letter of Credit.—But where an American exporter has no such recognized standing among American banks that customarily purchase commercial bills, it is necessary for his British customer to provide him with some documentary evidence to submit to the bank to which he offers his bill, as proof of the London bank's willingness to accept the bill. This evidence is in the form of what is known as a "letter of credit," issued by the London bank to its client and forwarded by him to his American seller, whom it formally authorizes to draw on the London bank for the amount and in accordance with the terms specified.

Upon receiving the document, the exporter exhibits it to the bank to which he offers his bill and, if his credit is otherwise satisfactory, he experiences little difficulty in negotiating the bill. If the London bank pledges itself absolutely in the credit instrument to accept whatever bills are drawn up to the amount and in conformity with the conditions specified, the credit is known as a "confirmed" or "irrevocable credit." If the London bank reserves the right to cancel at any time it sees fit whatever portion of the credit is still unused, the credit is called an "unconfirmed" or "revocable credit." Where speed is desired in transmitting the authorization to draw the bill to the American exporter, the London bank cables its American correspondent to issue him a letter of credit in its behalf.

It is generally stipulated in connection with cotton exports that the American shipper shall defray the freight charge and the marine insurance premium on the shipment; that is, the usual conditions of sales are "c.i.f.," which letters are abbreviations of the words "cost, insurance, and freight." The American merchant, however, recoups himself for these shipping expenses in the price in London gold he charges for the cotton. He fixes a price for the staple that will yield him, upon the sale of the 60-day bill, an amount of New York funds sufficient to cover all his costs and leave a satisfactory profit in his hands.

Computing the Price of a Long Commercial Bill.—Coming now to our illustration, let us take the instance of a cotton shipment consigned by a New York merchant to a Liverpool cotton-dealer. Suppose the conditions of sale are precisely as they have been stated above, the vendor agreeing to draw a 60-day sight draft on a prime London bank for the cost of the shipment delivered in Liverpool, which we shall assume to be £10,000. As soon as he has effected the marine insurance and delivered the bales to the transportation company, he draws a draft for the amount in duplicate, and attaches to each a copy of the bill

of lading, insurance certificate, and invoice. As he makes out the draft and shipping documents to his own order, he proceeds to dispose of the draft in the open market, to the bank bidding the highest price for it.

Commercial and Bankers' Bills Compared.—This brings us to the manner in which banks compute the price they will pay for long commercial drafts. In another chapter (see page 99) it was shown that long bills tend to parity with demand bills of the corresponding class in respect to the credit standing of the drawers, and that this parity price was equal to the price of the demand bills discounted for the period the long bills ran after sight at a rate representing the sum of the London discount rate "to arrive" and the British bill stamp rate. Theoretically, then, long commercial bills should tend to parity with demand commercial bills put out by drawers of the same grade of credit as the drawers of the long bills. In actual practice, however, no definite tendency of the sort is clearly observable, for, to begin with, dealings in demand commercial bills are too restricted in volume to permit of a regular market quotation for the drafts; and, in the second place, commercial drawers do not have the facilities possessed by banks for discounting their long bills in London and selling their own demand exchange against the proceeds. Thus, these commercial drawers have no alternative but to dispose of their long bills to American banks at the best price they can get, regardless of the relation of that price to the parity rate. Because of this, banks, in arriving at the price they will pay for long commercial bills, base their calculation on their own prime demand bills, which have a constant market quotation. They first compute the parity rate of the long commercial drafts as if they were prime bankers' bills, and then subtract from that rate an amount which measures in each case the relative inferiority of the drawer's credit. The amount deducted in the case of bills of a particular grade of credit varies to a certain extent with

the demand for the bills. If the demand for long bills in general is strong, the purchasing bank may have to forego the allowance entirely.

Calculating Price of Cotton Bill.—To calculate the price of our cotton bill, let us suppose that the London discount rate "to arrive" on the draft is 3% per annum, and the price for prime bankers' demand drafts is $4.8650. On the customary basis of 365 days to the year, interest on the demand price for 63 days (including the 3 days of grace) amounts to $.02519. As the British bill stamp tax is actually levied at the rate of $\frac{1}{20}\%$ of the face amount, this percentage of the demand rate amounts to $.00243. Hence the parity rate of a prime banker's 60-day bill is the demand rate of $4.8650 minus the sum of the above interest and stamp tax, or $4.83738, which ordinarily would be given as $4.83\frac{3}{4}$. Assume now that a bank, taking into account the cotton exporter's credit and the existing state of the market for long bills, bids $\frac{1}{4}$ of a cent under this parity rate, or $4.83\frac{1}{2}$. If its bid is accepted, it pays the exporter a total of $48,350 for the £10,000 cotton bill. That is to say, for approximately 2,354 ounces of London funds payable 63 days after the acceptance of the bill, minus 1.2 ounces for the bill stamp, the exporter receives immediately 2,339 ounces of New York funds.[1]

[1] For the convenience of banks in computing the parity price of prime long bills of the ordinary maturities, a so-called interest table is compiled, which gives at a glance the amount to be deducted from the prevailing demand price for London interest and the bill stamp. The amount of this aggregate discount is figured, however, on the basis of a constant demand price of $4.85, as it is obviously impossible to construct a single table which would take into account a varying demand price. The result obtained by using the table is, therefore, slightly different from that secured by separate calculation on the basis of the prevailing demand rate. It will be observed that while in theory the difference between the parity rates for demand exchange and a long bill represents interest on the rate for the latter, in practice it represents interest on the demand rate.

Procedure of Purchasing Bank.—Receiving the two copies of the draft and the accompanying documents, the purchasing bank dispatches them by the next two mail steamships to its London correspondent, with instructions to obtain acceptance from the drawee bank, and to discount the bill immediately. Upon the arrival of the first of exchange, the London correspondent presents it to the drawee, which affixes its acceptance, having first satisfied itself that both bill and shipping documents comply strictly with the terms of the credit under which the bill was drawn. On returning the draft, the accepting bank retains the shipping papers, as that is usually one of the conditions under which London banks agree to accept drafts for British importers. It releases the bill of lading to the importer on whatever terms are stipulated in their agreement. Unless he enjoys first-class credit, the importer will be obliged to execute a trust receipt in favor of the bank, by virtue of which the bank will have full control of the cotton consignment after its arrival in Liverpool, or the proceeds from its subsequent sale, until it is reimbursed for the face amount of the draft and the acceptance commission.

Upon getting back the accepted draft, the London correspondent of the American bank attaches the bill stamp and delivers the bill to the discount company or bill broker named in the New York bank's letter of advice as having agreed to discount it at the annual rate of 3%. The £9,949 it receives, less the £5 it has paid out for the bill stamp, it passes to the credit of the New York bank's account, against which it charges the £9,944 of demand bills which the New York bank presumably sold when it purchased the long bill and which are now presented for payment. If the demand bills were sold at an average rate of $4.8650, the New York bank received approximately $48,377 for their entire amount; and as it paid $48,350 for the cotton bill, it netted a profit of $27. Upon the maturity of the cotton bill the holder presents it to the accepting bank for payment,

and receives the full amount of £10,000 provided in advance by the importer.

Documentary Acceptance Bills.—Varied as they are to meet the diverse conditions surrounding the export shipments giving rise to them, commercial bills can nevertheless be classified into the following three main divisions:

1. Bills accompanied by shipping documents which are released when the bills are accepted.
2. Bills accompanied by shipping documents which are not released until the bills are paid.
3. Bills not accompanied by shipping documents.

These classes are designated as follows:

1. The documentary acceptance bill.
2. The documentary payment bill.
3. The clean bill.

The cotton bill just described illustrates the documentary acceptance class. The holder of this type of draft releases the bill of lading and the other shipping documents to the drawee when the draft is accepted, and thereafter he and the succeeding holders have only the unsecured credit of the acceptor and the contingent liability of drawer and subsequent indorsers to protect them against default of payment. Generally speaking, bills of this class are drawn on prime London banks and private bankers, whose mere acceptance is universally taken as a sufficient guarantee of payment to render the bills discountable in the London bill market at the lowest prevailing rate.

The "Domiciled" Bill.—There is a species of documentary acceptance drafts, known as the "domiciled" bill, which is drawn on a foreign, non-British bank, but is made out in sterling and is payable at that bank's London correspondent. Thus, for example, against a shipment to Italy the American exporter

may draw for the requisite amount of sterling on a bank in Milan. The New York bank which purchases the draft forwards it first to Milan for acceptance, and then has it reforwarded from there to London for discount, or for payment at maturity. Several days prior to the due date the Italian bank remits the necessary amount of sterling cover to its London correspondent, with instructions to pay the bill upon presentation. The cost of the remittance it charges to the Italian importer.

Of all documentary acceptance bills drawn on banks the domiciled draft sells at the lowest price in New York, for the following reasons:

1. The London discount market harbors a decided prejudice against foreign acceptances, and exacts a higher discount rate on them than on bills bearing a British bank acceptance.
2. Allowance must be made in the price of the bill for two bill stamps, one affixed in the country of acceptance and the other in London.
3. As the bill travels to London by way of the point of acceptance, its price is not figured on the basis of the rate for demand bills sent directly to London, but on the basis of the lower rate applying to demand bills remitted by the same indirect route (see page 102).

Partly because of these disadvantages attaching to the domiciled bill, some foreign banks, in their eagerness to retain the financing of native imports by means of sterling bills, have established branches in London for the purpose of giving their bills the status of London acceptances. But London bill buyers show some discrimination even against the sterling bills of these foreign agencies. As a rule they reserve the lowest discount rate for bills of purely British acceptors, the great joint-stock banks and the world-renowned private banking firms, whose business is primarily that of accepting bills.

The Documentary Payment Bill.—Documentary payment bills, comprising the second class of long commercial bills, resemble the documentary acceptance type in that they carry bills of lading and other shipping documents. But, unlike the latter, which are almost always drawn on banks, they are made out directly on the overseas importers, and as the unsupported credit of these drawees is not regarded as an entirely satisfactory guarantee of payment, the bills of lading are not surrendered to them until they have paid the drafts.

By the custom of the London market, however, British importers are generally allowed the option of anticipating payment on bills of this class, whenever they desire to get possession of the underlying shipments. They may want the goods in advance of the bill's maturity for the purpose of making delivery on a sale they have made, or to save warehouse charges; or, if the goods are of a perishable nature, to make better provision for their preservation. Whenever they avail themselves of this privilege, the importers are allowed a rebate from the face amount of the draft for the unexpired portion of the term, which is reckoned at ½% above the rate of interest the London joint-stock banks are granting on deposits, commonly referred to as the "retirement rate." It is on the basis of this rate that the bills are bought by New York banks.

Naturally, the foreign importers must know where to look for such drafts when they are ready to take them up. For this reason documentary payment bills purchased by American banks are not discounted in the London market, but are held until retired by the importers. It is, therefore, impossible for American banks, in order to secure the immediate return of their purchase money, to sell demand exchange against this class of bills. If they desire to avoid assuming any speculative position in exchange, they may sell future exchange for delivery when, as they know from past experience, the bills are likely to be taken up, provided they have an abundance of capital at their disposal.

Otherwise they reimburse themselves immediately by selling their own long bills on their London correspondents against the pledge of the payments bills as collateral.

Clean Commercial Bills.—Clean bills, the third class of commercial drafts, are, as their name implies, distinguished by the fact that they are not accompanied by any shipping documents, these documents being sent by American exporters directly to their customers. American banks purchasing bills of this character do so solely on the strength of the general credit of the exporters until the drafts are accepted on the other side. Consequently, only exporters of the highest credit rating can draw clean bills with any expectation of being able to sell them in New York.

Sterling Import Credit.—Having discussed long commercial bills, as pertaining to the sterling export credit, the medium used in financing a large part of the American export commerce, we may take up the sterling import credit, employed in financing imports. The procedure here is precisely the reverse of that followed in the case of the export credit. In making a purchase abroad, the American merchant applies to his bank to open for his account an acceptance credit with its London correspondent, in favor of the overseas seller, located, let us say, in Milan, Italy. In complying with his request, the bank, which has a standing arrangement with its London correspondent on the matter of acceptance credits, issues him a letter of credit, which he forwards to the Italian merchant. Upon receiving it, the latter makes his shipment and draws a draft for the invoice value, against the London bank named in the credit. He negotiates this draft at a local bank, submitting the letter of credit as evidence of his authority to draw on the London bank. The draft with the attached documents is sent by the Italian bank to its London correspondent, with instructions to procure its acceptance, and

then either to discount it or to hold it pending the receipt of further orders. In the meantime the London drawee is advised by the New York bank concerning the credit that has been issued against it. When the draft is presented at its counter, the London bank carefully examines the documents, and if it finds that they conform in all particulars to the conditions of the credit, it accepts and returns the draft, first detaching the documents, which it relays to the New York bank for release to the importer under a trust receipt, or on any other terms that have been agreed upon.

In extending a reimbursement credit, the New York bank and the London acceptor may operate on a joint-account basis, and share together whatever profit accrues from the transaction. In any case, the New York institution engages to furnish the London bank with the required amount of London funds to protect the draft at maturity, but holds the importer in turn responsible for the amount of the reimbursement. Fifteen days or so prior to the draft's maturity, the New York bank expects to receive from the importer either a demand bill for the amount, or the equivalent in New York funds as determined by the current quotation for the exchange. For the service of securing the London credit and guaranteeing the London accepting bank reimbursement, the New York bank gets a commission from its client, a portion of which it passes to its London correspondent as its compensation for accepting the bill.

If the importer has sold the merchandise, or is in funds from other sources before he is required to provide his bank with the sterling reimbursement, he may be permitted to anticipate payment, in which event he is granted a rebate for the balance of the bill's life at the retirement rate of discount applying to documentary payment bills. Or if he finds it more advantageous, he may purchase a long banker's bill on London for the amount of the required remittance, maturing about the time the reimbursement is due in London, and hand it over to his bank in full

discharge of his obligation. In the event of his inability to furnish the remittance when due, the bank may allow him an extension of time, for which it will charge him the rate commonly levied on London bank overdrafts, which is 1% above the official Bank of England discount rate.

Dollar Export and Import Credits.—Prior to the outbreak of the war the foreign trade of the United States was financed almost entirely by credits established in foreign centers, chiefly in London. American merchants engaged in international commerce were compelled, with comparatively few exceptions, to undertake in connection with every transaction the exchange of American funds for foreign funds, or the reverse. But in the field of international finance one of the radical changes brought about by the conflict has been the greater resort to dollar credits issued by American banks—New York institutions in particular. This tendency in no small measure has shifted onto overseas merchants the necessity of exchanging foreign for American funds.

This increasing use of dollar credits is ascribable to several causes. Shortly before the world was engulfed in the great cataclysm, the federal government enacted the Federal Reserve Act, authorizing national banks, by one of its provisions, to accept bills drawn against them for commercial purposes. This enactment was soon followed by the passage of laws in various states conferring a similar power upon banking institutions operating within their jurisdictions. So far as the law was concerned, American banks were prepared to advance export and import merchants in the United States, as well as in foreign neutral countries, the accommodation the war deprived them of in London and other belligerent centers. Simultaneously with these developments, and mainly in consequence of them, there grew up in this country a fairly active discount market, with its center in New York, which has provided foreign banks with a

ready outlet for the dollar bills they purchase of their exporting customers, and has accordingly encouraged them in the use of dollar credits.

Brief Analysis of Dollar Credits.—No extended analysis of dollar credits is necessary here, as their issuance by American banks is precisely analogous to the advance of sterling credits made by London banks. In the case of exports, let us say, to Buenos Aires, the Argentine importer requests his local bank to open a credit with a New York bank for the benefit of the American exporter. Upon receiving the authorization to draw against the New York bank, either by letter of credit issued by the Buenos Aires bank and transmitted by the Argentine customer, or by letter of advice from the New York bank, the American exporter draws a draft for the invoice amount of the shipment, and, attaching the bill of lading and other documents, secures the New York bank's acceptance of it. Thereupon he disposes of the draft in New York to an acceptance dealer or his own bank, and thus obtains immediate reimbursement against his consignment. The draft being supposedly of the documentary acceptance variety, the New York accepting bank keeps the bill of lading and forwards it to the Buenos Aires bank for release to its client. With the approach of the draft's maturity date, the Argentine importer purchases demand exchange on New York for its face amount, and turns it over to his bank, which remits the exchange to the New York accepting bank. Being thus put in funds the New York bank meets the long draft as it comes due, and brings the entire transaction to a close.

As for the financing of imports with dollar credits, the American importer arranges with a New York bank for an acceptance credit in favor of an Argentine exporting merchant, who upon being notified of the fact makes his shipment and draws his bill in dollars against the New York bank. He sells this bill to a Buenos Aires bank for domestic funds at the prevailing rate

for dollar exchange. The purchasing bank forwards the bill at once to its New York correspondent for acceptance and discount, and at the same time presumably offsets the purchase with the sale of its own demand exchange on New York. Upon the arrival of the long bill in New York, the drawee bank accepts it and withholds the bill of lading, for the purpose of turning it over to the importer. Getting back the accepted bill, the New York correspondent of the Buenos Aires bank has the bill discounted, and with the proceeds meets the demand bills the Argentine bank has sold. Subsequently, when the long bill matures, it is retired by the accepting bank with funds supplied in advance by the American importer.

Long Bankers' Sterling Bills.—Long sterling bills that are used in contracting short-time loans in the open discount market in London, being generally issued by banks and bankers, are given the name of "bankers' bills" (see Chapter VI, page 96). The drafts are drawn on the London correspondents of the New York banks, usually for 60 or 90 days' sight, and are either sold in London over against a sale of demand exchange (or cables), or are marketed in New York. They are disposed of in the latter place at prices which vary with the financial strength of their respective drawers and acceptors. Those bearing prime names command the best prices, and tend to parity with the corresponding grade of demand bills in respect to the standing of the drawers. Hence their parity price is equal to the price for prime bankers' demand drafts, the regularly quoted demand rate, discounted for the period they run after sight at a rate equal to the sum of their London discount rate "to arrive" and the British bill stamp rate. Other bills, issued by banks of inferior standing, sell for lower prices, which are arrived at in the manner indicated in the case of long commercial drafts (see page 139).

One of the purposes for which New York banks put out their

long bills is to prevent their funds from being locked up for any period of time in the non-discountable commercial drafts they purchase, and incidentally to avoid the risk of a possible drop in exchange rates pending the maturity of the commercial drafts. As the bills are drawn for the same period of time as the commercial drafts, they offset the latter at maturity, and the necessity of retransferring funds to New York by the sale of demand or cable exchange is obviated. The sale of long bankers' bills against the purchase of commercial drafts represents but a quick turnover of exchange, and banks can, therefore, issue them the year round as a part of their regular exchange business, regardless of the future movement of spot exchange rates or the present position of future rates. Or viewed from another standpoint, the sale of long bankers' bills against the purchase of commercial drafts merely amounts to borrowing in the London discount market against loans advanced in London at a higher rate to foreign importers.

Bills Issued for Relending.—We are chiefly interested, however, in long bankers' bills that are put out for the purpose of relending the proceeds in New York, and against the maturity of which remittance must be made to London. As the money thus realized is usually employed in what are known as "financial transactions," that is, in the purchase of securities, the drafts in this case are referred to as "finance bills." They are put out only when the cost incident to their issue is less than the interest on loans contracted in New York. The amount of this cost depends in every case on the relation of the price that will be paid for demand or cable exchange when cover is remitted to the London acceptor, to the price secured for the long bill. In figuring the relative advantage of floating their long bills, banks must take into account either the current rate for future demand or cable exchange, or the probable course of the spot rates for the same exchanges during the life of the long bills.

Issue of a Finance Bill.—As an illustration of the issue of a finance bill, let us take the instance of a 90-day sight bill for £10,000 drawn by a prime New York bank upon its London correspondent, which charges the bank an acceptance commission of $\frac{1}{8}\%$ of the face amount. Suppose a rate "to arrive" of $4\frac{1}{4}\%$ is quoted for the bill in London, as against an interest rate of $5\frac{1}{4}\%$ ruling in New York on loans of equal maturity; and suppose the price for demand exchange prevailing at the moment is $4.87. By referring to the interest table customarily used by bankers in calculating the price of long bills (see footnote, page 139), we find the parity price for the draft in question to be $4.8150, or the demand rate of $4.87 less the following two items—interest at the rate of $4\frac{1}{4}\%$ for 93 days, and the stamp tax of $\frac{1}{20}\%$—which, as given in the table, together amount to $.0550.

Suppose the bank happens to sell the bill precisely at this parity price, or for a total of $48,150; and at the same time purchases, at the rate of $4.8625, cover for the amount of the long bill and acceptance commission in the shape of future demand exchange for £10,012.5, deliverable 93 days later. As its outlay on the future contract will amount to $48,685.78, the 93 days' loan of $48,150 will cost it $535.78 in interest, or at the annual rate of approximately 4.36%. In view of the $5\frac{1}{4}\%$ interest rate assumed in New York, it advantages the bank to market its long bill on London instead of borrowing in New York.

Assume now that instead of purchasing future exchange, the bank elects to defer providing itself with cover until the long bill is due, being persuaded that in the meantime the spot demand rate will decline below the present quotation of $4.8625 for future demand. If it should happen to be correct in its forecast, the issue of the bill will cost it less in interest than the per annum rate of 4.36%. On the other hand, if its calculations should prove to be wrong and the spot demand rate should rise above $4.8625 during the next 93 days, the interest charge on its long

bill will amount to more than 4.36%, and might even exceed the interest rate now current in New York.

One-Name and Two-Name Long Bankers' Bills.—Long bankers' bills are classified under the headings of "one-name" and "two-name" bills. The one-name variety, or "pig on pork," as it is called in the lingo of exchange dealers, embraces bills drawn by banks on affiliated concerns in London, that is, bills drawn by trust companies and foreign bank agencies on their London branch offices, or by private banking firms on similar houses in London controlled by the same interests. The drawer and acceptor being virtually identical concerns, such bills represent but a single financial responsibility. The two-name class includes bills the drawers and acceptors of which are strictly separate and mutually independent establishments; they represent a twofold security. On this account prime two-name bills always command a lower discount rate in London and a higher price in New York than the best one-name bills. Nevertheless, New York institutions with branches in London, or private bankers with affiliated houses in London, invariably issue their one-name bills, since the loss they suffer by reason of the lower price at which they sell these bills is more than compensated for by the saving in acceptance commission they would otherwise be obliged to pay.

Issuers of one-name bills frequently put them out merely for the sake of the acceptance commission they thereby obtain. In lieu of selling the bills themselves, they turn them over to others who lack the requisite facilities for drawing on London, and receive the customary fee in return. Those accommodated in this way are generally large stock brokerage houses or money brokers. They dispose of the drafts in New York, and either relend or utilize the proceeds in their own business. They procure the bills only upon giving satisfactory guarantee of furnishing the issuing banks with the exchange the latter will be

obliged to remit to London as cover for the bills. This guarantee consists: (1) of immediately placing in the hands of the banks contracts of other prime institutions promising delivery of demand or cable exchange when the long bills fall due; and (2) of engaging to supply the banks with the funds they will be required to pay on the future contracts, and to that end pledging with them stocks and bonds as collateral security.

Renewal and Swapping of Long Bills.—Long bankers' bills are often renewed once or several times, and on occasion even indefinitely. Upon each renewal, the new bills are either sold and the proceeds devoted to the purchase of demand or cable exchange to meet the old; or they are exchanged directly, that is to say, swapped for demand or cable exchange. The swapping operations are tantamount to the discount of the long bills in London, and are arranged on the basis of the prevailing rates for the long bills and demand or cable exchange. The amounts swapped are in each case equal, the holder of the long bill paying the holder of the demand or cable exchange the difference between the two prices, which represents the London interest and bill stamp converted into New York funds. Thus, for example, if a £10,000 90-day sight bill is exchanged for the same amount of demand exchange on the basis of $4.8090 for the long bill and $4.87 for the demand draft, the owner of the long bill pays the owner of the demand draft the difference between the two rates for every £1 exchanged, or $610 on the entire swap. In a similar manner swapping operations may be executed between bills of different maturity selling at prices representing the same or different per annum interest yields, or between bills of the same maturity which are quoted at varying prices because of the differing credit standing of their respective drawers and drawees.

Investment Demand for Long Bills.—Long bills of either description, bankers' or commercial, are purchased by banks

and held to maturity as investments when conditions are favorable. As was learned in an earlier chapter (see page 94), the amount of interest return on such investments is determined by the price at which demand or cable exchange is sold against their maturity as compared with the price at which the long bills are bought. To take a concrete case, suppose a bank purchases a 60-day sight bill for £10,000 at the rate of $4.82, and at the same time sells at the rate of $4.8610 a demand future for £9,995 (the face amount of the long bill minus the bill stamp of $\frac{1}{20}\%$), deliverable in 63 days. Against the $48,200 it now lays out on the bill, it will receive $48,585.69. It will net a return of $385.69 on its 63 days' investment, or a per annum rate of 4.63%. If, however, it postpones the sale of exchange until the long bill is about to mature, the investment will net it a yield higher or lower than the above rate, according as the price at which it sells the exchange will be greater or less than the current future rate of $4.8610.

Date Bills.—The long bills we have thus far been considering are more specifically referred to as "long-sight bills," in allusion to the fact that they are payable a stated number of days or months after they are accepted in London. Since buyers of such bills must remit them to London for acceptance in order to fix their maturity date, it is impracticable for anyone to invest in them who has no bank correspondent in London to attend to their being accepted. On occasion, however, when the rate of return on long bills is particularly attractive, issuing banks make it possible for even those not engaged in the regular foreign exchange business to invest in the bills, by putting out a special type known as "date bills."

As its name suggests, this type of draft is made out to mature a specified period after it is drawn, irrespective of when it will be accepted by the London drawee. Consequently, a buyer of a date bill need not be in any haste to secure its acceptance, if

he is satisfied with the drawer's credit. Indeed, he is not obliged to remit it to London at all, if he decides to hold it until it is time to forward it across for collection, for he can then sell the bill as demand exchange, or deliver it on a future contract he may have previously put out. Furthermore, if he sells it to the bank he bought it from, the bill will be canceled on this side and never reach London; incidentally he will save himself the cost of the British bill stamp. As a matter of fact, issuers of date bills allow buyers the option of selling the bills back to them and accepting in payment demand drafts, which they can dispose of in the open market.

Date bills are generally drawn to run for 70 or 100 days, in order that their maturity may approximate the due dates of 60- and 90-day sight bills issued at the same time, 10 days being allowed for the sight bills to reach London and be accepted. A bank may thus sell its 70-day date bill against its purchase of a 60-day sight bill, and have the date bill itself, or the demand bill which it gives in payment if it buys back the date bill, met with the proceeds from the collection of the sight bill. Both types of bills, are, therefore, equivalent, and given drawers and drawees of equal credit standing, sell for the same price. In figuring the parity price of a date bill, account is taken of the extra number of days it is discounted for, by basing the calculation on the prevailing spot cable price. The parity quotation is equal to the cable price discounted at the London rate of interest and bill stamp for the time the bill runs from date.

Intercity Loans; Other Types.—Loans negotiated between New York and London have heretofore been considered solely with reference to one particular type, namely, the long bill of exchange. Intercity loans, when they take the form of straight advances on promissory notes, or bond issues floated in one country by corporations of the other, are of a somewhat different nature.

The contract by which a loan is extended by a party in the one city to a party in the other must stipulate, first, where the loan is to be advanced, and second, where the interest and principal are to be paid. That is to say, the lender and borrower must agree upon the place in which the former is in effect to deliver the gold he is advancing, and also upon the place in which the borrower is to tender the gold he will give in payment of the interest and the loan. As a rule the contract provides, particularly in the case of short-term loans, for payment of the principal and interest where the advance is made. Thus, if an American extends a loan in London, he usually agrees to accept payment in that city.

The Sterling Loan.—Measured as it is in terms of the British monetary unit, an intercity loan extended in London is known as a "sterling loan." The British lender, or the British borrower, if the advance is made by an American, is under no necessity of performing an exchange transaction between the two cities, either when the loan is contracted or when it is due. The one will accordingly receive and the other will pay the rate of interest mentioned in the contract, and from the standpoint of both the loan is in no wise different from a domestic loan.

Quite the opposite, however, is the case as regards the American lender or borrower of a sterling loan. When making the advance, the former must first place himself in funds in London by either purchasing sterling exchange in New York or selling dollar exchange in London; and subsequently, when he is paid the interest and principal in London, he must either sell sterling exchange in New York or purchase dollar exchange in London by way of transferring his funds back to New York. On the other hand, if the American party to a sterling loan is the borrower, and wants to utilize the proceeds in New York, he is obliged either to sell sterling exchange in New York or buy dollar exchange in London; and later, when interest and principal

are due, he is required to remit to London by either purchasing sterling exchange in New York or selling dollar exchange in London. Thus, in the case of a sterling loan, the American lender or borrower, as the case may be, must perform an exchange in the one direction when the loan is advanced, and in the other direction when interest and principal are due. As the one computes his interest return and the other his interest cost in terms of New York funds, the interest rate, on this basis of calculation, will differ from the contract rate if the prices at which the two exchanges are effected vary from each other.

Example of a Sterling Loan.—To take an example, suppose a party in New York purchases a cable transfer on London for £1,000 at the rate of $4.86, and lends the sum out for a half-year at the annual rate of 6%, agreeing to accept payment in the same place. He thus lays out $4,860 in New York on the loan, upon the maturity of which he will receive £1,030 in London. If on the due date he should sell against this amount of sterling cable transfers at the rate of $4.87, he will have $5,016.10 in New York. For all practical purposes he may be regarded as advancing $4,860 and being paid back $5,016.10. The return on his loan will, therefore, amount to $156.10, or at the annual rate of 6.42%. Thus by reason of the appreciation of sterling exchange from $4.86 to $4.87 during the life of the loan, he will secure a per annum rate of return .42% in excess of the rate stipulated in the contract. If, however, the sterling rate had declined below $4.86 during the 6 months, the yield on the loan would have been less than the contract rate of 6%.

In the opposite case, where a sterling loan is advanced by a Britisher to an American, the interest cost to the latter as computed in New York funds will be less than the contract rate if he should pay a lower price for the sterling exchange he will remit to London upon the maturity of the loan, than the price at which he now sells exchange against the proceeds of the loan.

It will be greater than the contract price, if he should pay a higher price for his future purchase of exchange than he receives on his present sale. In short, an advance in the sterling rate of exchange during the period of a sterling loan is favorable to an American lender of such a loan and adverse to an American borrower, while a decline in the rate of exchange is adverse to an American lender and favorable to an American borrower. The parties to the loan may eliminate this speculative element, however, by respectively selling or purchasing in the beginning future exchange maturing when the loan falls due. By this expedient they fix in advance the rate of interest return or charge as figured in New York funds.

The Dollar Loan.—When a loan between the two cities is advanced in New York, it is called a "dollar loan." Here it is the American lender or borrower, as the case may be, who is not obliged to undertake any exchange operations. Hence the interest rate the one will receive and the other will pay will be precisely the rate stipulated in the contract. On the other hand, the British lender of a dollar loan must purchase dollar exchange in London (or sell sterling exchange in New York) preliminary to making the advance, and subsequently, when the loan is repaid, sell dollar exchange in London (or purchase sterling exchange in New York). As he will naturally reckon the amount of his interest yield in London funds, the rate of return will be greater than the contract rate if the price of dollar exchange advances during the currency of the loan, and smaller if the price of exchange declines. As for the British borrower of a dollar loan, he sells dollar exchange in London (or buys sterling exchange in New York) at the outset by way of transferring the proceeds home; and later, when he remits to New York to meet the maturing loan, he will purchase dollar exchange in London (or sell sterling exchange in New York). It is obvious that the rate of interest he will pay in London funds will exceed or be

less than the contract rate according as the price of dollar exchange rises or falls in the meantime.

Payment of International Bond Issues.—Like domestic advances, international loans run for short periods or for a number of years. In the latter case they naturally take the form of bond issues. Even here it is generally stipulated that the bonds and coupons shall be payable in the city of their issue. But occasionally it is provided that they shall be payable in either city at the option of the bondholders. In that event a rate is fixed for the purpose of determining the amount the corporation will be obliged to pay in the other city. Whether the bondholders will present their claims at maturity in the one or the other city will depend on the relative position this fixed rate holds to the rate of exchange prevailing at the time, as the following example will show.

Suppose an American corporation, which has put out a sterling issue of bonds in London, has accorded holders the privilege of demanding payment on the coupons and bonds either in London for the full face amount as expressed in pounds sterling, or in New York at the rate of $4.8665 per £1 of the face amount. If, on the maturity dates of the coupons and bonds, the rate for sterling cables is $4.85, it will pay American holders to present them for payment in New York, as their receipts will be less by $.0165 per £1 of the amount due if they should accept payment in London and sell sterling exchange against it. It will likewise advantage British holders to remit their coupons and bonds to New York for payment and receive $4.8665 per £1 of the face amount, as by purchasing with the proceeds sterling exchange in New York at the rate of $4.85, they will net £1 $\frac{8\,3}{9,7\,0\,0}$ for every £1 of the face amount of their claims. On the other hand, if the sterling rate is quoted above the fixed rate of $4.8665 when the coupons and bonds mature, say at $4.88, British holders will then require payment in London, as they will obtain less than

the face amount, to be exact, $\frac{8}{1.7\frac{8}{8}}$ of £1 per £1 of interest or principal, if they should accept payment in New York and purchase sterling exchange. American holders will also demand payment in London, since by selling sterling exchange against the proceeds at the rate of $4.88, they will receive $4.88 for every £1 of the amount due, as against $4.8665 if they should request payment in New York.

The bonds must, of course, be remitted to the foreign city sufficiently in advance to permit of their being presented on the due date. Unless, then, the holders are willing to run the risk of a decline in exchange rates while the securities are en route, they will sell, when they mail the securities, either spot demand exchange, or future cables for delivery on the maturity date of the bonds. Moreover, to protect themselves against the loss of the securities, they will take out marine insurance, the charge on which in peace times is at the rate of about $\frac{1}{10}\%$ of the face amount of the bonds. They must, therefore, make due allowance for this item of cost in figuring the relative advantage of receiving payment on the bonds in the foreign city. Naturally, only bankers with correspondents in the foreign city can remit such bonds and coupons for collection abroad. Other holders are obliged to dispose of them at home as demand exchange, in sufficient time to permit the purchasing bankers to send the securities to the other side for presentment on the day of maturity.

Thus where bonds issued in one center are made payable as to both interest and principal in either place at a fixed rate, holders are permitted to take advantage of the current position of the exchange rate on the interest and maturity dates of the bonds. The risk inherent in the course of the exchange rate pending the maturity of the coupons and principal is undertaken by the corporation, which is willing to shoulder it for the sake of rendering the securities more attractive to investors in both markets.

CHAPTER XI

OTHER FOREIGN EXCHANGES IN NEW YORK

Settlements between Various Countries.—Exchange on London is employed extensively in making international settlements the world over; that is, a great proportion of the payments between the various countries are effected by what is tantamount to the delivery of gold in London, namely, the transfer of London bank deposits, or claims on London banks for ready gold. Owned by banks hailing from every quarter of the globe, these bank balances are drawn against, by cable transfer, demand and long drafts, in favor of customers who require sterling exchange to pay obligations in other countries, and are at the same time replenished as the banks purchase sterling exchange from other customers who have received it from their foreign debtors.

To all intents and purposes, then, London banks constitute one great storehouse of gold, held for account of foreign depositing banks, by whose intervention it serves as the medium of payment in international transactions. As payment is made from one country to another, say, from Buenos Aires to New York, the Argentine debtor transfers to the American creditor title to a portion of this stock, which he obtains from a Buenos Aires bank in exchange for local gold, and the American creditor turns it over to a New York bank in exchange for New York gold.

While sterling is thus the paramount exchange in most markets of the world, nevertheless payments between the more important countries are to no small extent effected by the delivery of gold, as it were, in their respective financial centers. Each of these cities deals in exchange on the others. Thus in New York, exchange is traded in on Paris, Berlin, Vienna, Ant-

werp, Milan, and other important cities, while dollar exchange is dealt in in each of these centers on New York.

Apart from minor variations, due to differences in the practices of dealers, or in the laws of the countries on which the exchanges are drawn, dealings in these various remittances in New York are conducted in the same manner as in exchange on London. In each case, transactions are made in cable transfers, demand and long exchange, for both spot and future delivery, and the rates are subject to the identical laws governing the movements of the sterling quotation. The tendency toward the various parity relationships is far less pronounced in these minor exchanges, however, than it is in sterling, as these exchanges are considerably less active than the British exchange.

Exchanges Quoted in New York.—As was stated in the first chapter, different countries have adopted different units for measuring quantities of the standard metal. In the few instances where the same unit is used by several countries, it is sometimes designated by different names. Nor is there complete uniformity in the manner in which New York dealers quote the exchanges on these countries. In the majority of cases the rates are expressed by the first system of quotation, being given in the number of cents (New York gold) that is offered in exchange for the foreign units (foreign gold). In a few cases the second system of quotation is employed, the rates being denoted by the number of foreign units that are exchangeable for one dollar.

Franc Exchange.—Exchange on Paris, or "franc exchange," as it is called from the name of the French monetary unit, holds second place to sterling in respect to the volume of business done in it. It is one of the remittances to which the second method of quotation is applied, its rate being expressed in so many francs to the dollar. As the franc consists of 4.4803 grains of gold,

5.18⅛ francs are approximately equivalent to $1 (that is, 5.18⅛ × 4.4803 = roughly 23.22), and is, therefore, the par of exchange, since a rate at that figure signifies that 23.22 grains of Paris funds exchange for the same amount of New York funds. If 5.20 is quoted, the rate is at a discount, for in that case 23.2975 grains of Paris funds bring only 23.22 grains of New York funds. On the other hand, if the quotation is 5.17 francs, it is at a premium, since only 23.1631 grains of Paris funds are required to obtain 23.22 grains of New York funds. In short, Paris exchange is at a discount when the figure indicating its rate is above 5.18⅛ francs, and at a premium when the figure is below 5.18⅛ francs. The other exchanges in New York whose rates are expressed in terms of their respective monetary units are those on Italy, Switzerland, and Belgium, all of which countries possess the same unit as France, though in the case of Italy it is called the "lira."[1]

Mark Exchange.—Exchange on Berlin, Hamburg, and other German centers is usually called "mark exchange," after the name of the German monetary unit. Its rate is quoted at so many cents per 1 mark, or according to the first method of quotation. As the German unit consists of 5.5312 grains of gold, it is equivalent to 23.82 cents (5.5312 is approximately .2382 of 23.22). When the rate is quoted at 23.82 cents, it is obviously at par. As the quotation is expressed in American gold, it is at a premium when it rises above 23.82 cents, and at a discount when it falls below this figure.

Canadian Exchange.—Exchange on Canada affords an example of the use of a monetary unit common to both countries. The

[1] It will be observed that since each of these exchanges is quoted in terms of its respective monetary unit, that is, in foreign gold, the percentage of any ruling premium or discount is arrived at by dividing the prevailing rate (not par) into the difference between that rate and the par of 5.18⅛ francs (see footnote, page 19).

exchanges are transacted principally with Montreal, and it is customary to quote the rate by expressing the percentage of the existing premium or discount. Thus a rate of $\frac{1}{16}\%$ premium signifies that $1,000 (or 23,220 grains of Montreal gold) commands $100\frac{1}{16}\%$ of that amount of New York gold. Practically all the other exchanges traded in New York are quoted at so many cents to the foreign unit, after the manner of mark exchange.

Countries Dealt with by New York.—Following is a list of the monetary units of the principal countries on which exchange is dealt in at New York, together with the amount of fine gold contained in each and their respective pars of exchange, which are expressed in the American unit in the case of those exchanges which are in practice quoted in terms of New York gold, and in the foreign units where the exchanges are in practice quoted in terms of foreign gold:

Country	Name of Unit	Pure Gold Content in Grains	Par of Exchange in the American Unit	Par of Exchange in the Foreign Unit
Great Britain	Pound Sterling	113.001	$4.8665	....
France	Franc	4.4803	....	5.18¾
Switzerland	Franc	4.4803	....	5.18¾
Belgium	Franc	4.4803	....	5.18¾
Italy	Lira	4.4803	....	5.18¾
Spain	Peseta	4.4803	19.295 cents	....
Greece	Drachma	4.4803	19.295 "	....
Germany	Mark	5.5312	23.82 "	....
Holland	Guilder	9.33	40.195 "	....
Denmark	Kroner	6.2226	26.8 "	....
Norway	Kroner	6.2226	26.8 "	....
Sweden	Kroner	6.2226	26.8 "	....
Russia	Rouble	11.9465	51.46 "	....
Austria	Krone	4.7049	20.26 "	....
Japan	Yen	11.5742	49.84 "	....

Triangular Parity when Rates Are Quoted as Usual.—A word of explanation is first necessary before examining the tri-

angular parity relation of the rates for the exchanges between three centers, as illustrated in the case of New York, London, and Paris, when quoted in the regular way. The price for sterling exchange in Paris is regularly expressed in terms of so many francs to the pound sterling, or according to the first system of quotation. As the franc contains 4.4803 grains of gold and the pound sterling 113.001 grains, 25.22½ francs are approximately equivalent to £1 sterling, and represent, accordingly, the par for sterling exchange in Paris.

To take an example of triangular parity, suppose sterling cables are $4.86 in New York and 25.22 francs in Paris. If at the same time the rate for franc cables in New York is 5.1890 francs to the dollar, so that 25.22 francs of Paris cables can be purchased for $4.86, it will cost equally as much to remit to London, whether it is done by the purchase of sterling cables in New York, or by the purchase in turn of franc cables in New York and sterling cables in Paris. When the three quotations are in this relative position, they are manifestly in triangular parity, and 5.1890 francs for Paris cables in New York is the parity of the sterling cable rates in New York and Paris.

The Narrow Market and Readjustment.—When the three rates are thrown out of this parity relationship, a process of readjustment in the demand and supply of each of the three exchanges immediately sets in, which tends to restore the equilibrium. In the course of this readjustment all three quotations undergo modification. But the greatest alteration occurs in the exchange possessing the narrowest market. As the sterling markets in New York and Paris are considerably more active than the franc market in New York, and, therefore, less responsive to the same volume of buying and selling, triangular parity between their rates is established to a far greater extent through a movement in the franc quotation in New York than by any shifts in the sterling rates in New York and Paris, which are

controlled by the condition of the ordinary demand and supply rather than by that resulting from any existing disparity.

Indeed, to such degree is the franc rate dependent ordinarily on the relative positions assumed by the sterling quotations in New York and Paris, that New York bankers hesitate to do business in Paris exchange until they have been advised by cable of the rate for sterling cables in Paris. Having obtained that quotation, they proceed to calculate the parity rate for Paris cables in New York, to which they adjust their market price, as well as the prices for the other forms of franc exchange. If, for example, a rate of 25.23 francs is cabled for sterling cables in Paris, and the sterling rate in New York is $4.86, they immediately make their quotations for franc cables conform to the parity rate of 5.1913 francs, which they arrive at by dividing 4.86 into 25.23.

Given a stationary rate for sterling cables in New York, the franc cable rate in New York declines (the figure indicating it rises) as the sterling rate in Paris advances; and vice versa, the franc cable rate advances (the figure declines) as the sterling rate in Paris declines. On the other hand, if the sterling rate in Paris remains unchanged, the franc cable rate in New York rises and falls with the sterling rate in New York. A similar tendency to subordination to sterling is shown by the rates for exchanges on the other centers. Thus, sterling, by reason of its preponderant activity in most of the markets of the world, is the pivotal exchange, on which the other exchanges more or less hinge.

Bankers the world over are constantly cabling each other the rates obtaining in their respective markets, and very often the prices at which they stand ready to buy or sell cable exchange on other centers. With these rates before them they compute the various triangular parities and determine the cheapest way of remitting to or from a particular center, whether direct or by way of one or two intermediate points, and also the comparative profitableness of effecting three-cornered arbitrages, as explained in Chapter VII.

Swapping Foreign Currencies in New York.—Occasionally it happens that a bank desires to dispose of franc cables and to acquire sterling cables at one and the same time. Its obvious course in that case is either to make two exchanges in New York by selling francs and buying sterling, or to make one exchange in Paris by purchasing sterling cables there. It also has the third alternative of making a single direct exchange of the francs for sterling in New York. Such an exchange of Paris gold for London gold contracted in New York is known as "swapping," and is executed on the basis of the prevailing rates for sterling and franc cables in New York. If sterling cables are quoted $4.86 and franc cables 5.18 francs, the swap is negotiated in the neighborhood of 25.17½ francs (4.86 × 5.18) to the pound sterling, which, it will be noticed, is the triangular parity rate for sterling cables in Paris.

APPENDIX A

PRACTICAL PROBLEMS IN FOREIGN EXCHANGE

1. A New York banker desires to remit at once to London to meet some long bills maturing 12 days hence, when the next New York mail is due in London. He can lend in New York at 5% and borrow in London at 4%. If the rate for sterling spot cables is $4.8625, the demand rate $4.8570, and the rate for 12-day future cables $4.8620, which of the three forms of remittance will cost him least?

2. Assume the conditions of Problem 1.

(a) Which two classes of exchange would a banker select for the most profitable arbitrage?

(b) What would his profit be on £100,000 of whatever form of exchange he sold on the operation?

3. A New York banker wishes to avail himself of prevailing exchange rates to transfer certain funds to New York. He will come into possession of these funds in London 10 days hence, which time marks the end of the current mailing period from London to New York. The sterling spot cable rate in New York is $4.8625 and the demand rate $4.8575, while the dollar spot cable rate in London is $4.8630.

(a) If the London interest rate is 3%, which of the three methods of transfer is the most advantageous?

(b) Which is the most profitable arbitrage between the three exchanges?

(c) What is the arbitrageur's profit on every £100,000 of exchange he either sells or purchases?

4. Suppose interest is at the rate of 6% in New York and 5% in London, and that 10 days are required for a draft to go by mail in either direction between the two cities.

(a) If the sterling spot cable rate in New York is $4.8605 and the demand rate $4.8550, while the dollar spot cable rate in London is $4.86 and the demand rate $4.8670, by which of the four methods will a New York banker who has a debt maturing in London 10 days hence remit most cheaply?

(b) Between which two is an arbitrage most profitable?

(c) What amount of profit does the arbitrageur realize on £100,000 of sterling exchange he either sells or purchases?

5. A New York merchant has purchased a quantity of wool in Argentina, for which he remits to Buenos Aires a demand draft on London for £25,000. The price of sterling spot cables in New York is $4.87 and the London interest rate is 5%. What has the draft cost him approximately, assuming that mail is 30 days in transit from New York to Buenos Aires, and the same length of time from Buenos Aires to London?

6. In October, 1919, spot cables on Paris were quoted at the abnormally low rate of 8.65 francs.

(a) What percentage of discount did this rate represent?

(b) If dollar spot cables in Paris were at parity with the franc quotation in New York, what was the percentage of their premium?

7. Banker Smith swaps with banker Brown £75,000 of demand exchange for the same amount of cable transfers on the basis of $4.8545 for demand and $4.8595 for cables. What settlement is made?

8. Banker Doe swaps with banker Roe £60,000 of 60-day sight bills for an equal amount of 90-day sight bills on the basis of 4.82\frac{5}{4}$ for the former and $4.81 for the latter. How is the transaction settled?

9. The price of demand sterling exchange in New York is $4.8635 and the London discount rate "to arrive" for 60-day sight bills is 3%. A banker purchases £50,000 of 60-day sight cotton bills at the rate of $4.8335, which he intends to discount immediately upon arrival in London, and at the same time he sells demand exchange for the amount of the prospective proceeds. What is the amount of his profit?

10. Money is lending in New York at 4%, the London discount rate "to arrive" is 3$\frac{1}{2}$%, and bankers' 90-day sight bills on London are selling in New York at 4.82\frac{5}{4}$. If the price of demand sterling for delivery in 93 days is $4.8725, and the commission charge of the London accepting bank is $\frac{1}{8}$%, will it advantage a New York banker to sell his 90-day sight bills and purchase future demand at the aforementioned rate?

11. A New York banker purchases £100,000 worth of 60-day sight bills at 4.81\frac{7}{8}$ for investment to maturity, and sells against them demand exchange for delivery in 63 days at the rate of $4.8560. Assuming that the demand draft will be cashed on the day the long bills are paid, what interest rate will the investment net the banker?

12. A London banker advances $100,000 in New York for 3 months at 5%, buying dollar spot cables at the rate of $4.8650. Upon the maturity of the loan, he recalls his funds to London by selling dollar cables at the rate of $4.86. What has been the rate of his interest return?

13. A British corporation floats a dollar bond issue in this country, the interest and principal of which are payable at the option of the holders either in New York at the face amount, or in London at the rate of £1 per $4.8665 of the face amount. Just prior to the departure of the last New York mail to reach London in time for the maturity of the bonds, sterling cables for delivery on the due date of the bonds are quoted $4.87. Where will it pay bankers of both cities to present their holdings of the securities for payment, assuming that the cost of insuring bonds forwarded from one center to the other is $\frac{1}{10}\%$, of their face amount?

14. Sterling exchange in Amsterdam, Holland, is quoted at so many guilders per £1, which is equivalent to 12.107 guilders.

(a) If the market rate for sterling cables is 12.10 guilders in Amsterdam and $4.8605 in New York, what is the rate for guilder cables in New York in triangular parity with the two sterling rates?

(b) If the guilder cable rate is actually quoted $.401, what profit will a New York banker realize per £1 on an arbitrage operation between the three centers?

15. In Italian centers, sterling rates are expressed in so many lire to £1 (£1 = 25.22$\frac{1}{2}$ lire).

(a) If sterling cables are quoted 25.20$\frac{1}{2}$ lire in Milan and $4.8575 in New York, what is the triangular parity rate of lire cables in New York?

(b) Assuming that the market rate for Milan cables in New York is 5.18 lire, what profit per £1 will a New York banker realize on a triangular arbitrage operation between the three cities?

APPENDIX B

GLOSSARY OF FOREIGN EXCHANGE TERMS

ACCEPTANCE. A draft which the drawee has bound himself to pay at maturity by writing across its face the word "Accepted" and his signature. (See also "Bank Acceptance" and "Trade Acceptance.")

ACCEPTANCE CREDIT. Engagement on the part of a bank to accept under certain stipulated conditions a specified amount of bills in behalf of a borrower or buyer of goods.

ACCEPTOR. One who, as drawee, accepts a bill of exchange or draft.

ACCOMMODATION PAPER. A bill, draft, or promissory note which is accepted or indorsed by one person for another without consideration to enable the latter to raise money on it.

AMERICAN EXCHANGE. (See "Dollar Exchange.")

ARBITRAGE. A simultaneous purchase and sale performed by the same operator between two classes of exchange in the one market, or between the same or different classes of exchange in different markets.

ARBITRAGEUR. One who performs an arbitrage transaction.

BANK ACCEPTANCE. A bill of exchange which is drawn on and accepted by a bank.

BANKERS' BILLS. Those drawn by banks and bankers on foreign correspondents.

BILL BROKER. London dealer in bills of exchange.

BILL OF EXCHANGE. An order drawn by one party on another to pay a designated sum of money to a third party.

BILL OF LADING. Document the shipper of goods receives from the transportation company, evidencing his title to the goods.

CABLE TRANSFER. Remittance by cablegram.

CAMBIST. Same as foreign exchange dealer.

CHECK. Formal written order which a depositor draws on his bank to pay an indicated sum of money to a designated party.

CLEAN BILL. One unaccompanied by shipping documents.

COMMERCIAL BILLS. Those drawn by exporters of merchandise, either on the foreign buyers or their banks.

CONFIRMED ACCEPTANCE CREDIT. One which the issuing bank may not cancel.

CONSIGNEE. One to whom goods are shipped.

DATE BILLS. Drafts payable a certain period after the day of their issue.

DEMAND EXCHANGE. Draft payable upon presentation.

DISCOUNT HOUSE. Incorporated company dealing in bills of exchange.

DISCOUNT RATE "TO ARRIVE." Rate at which London bill brokers and discount houses agree in advance to discount bills for foreign banks upon arrival in London.

DISPARITY. Opposite of parity. (See "Parity.")

DOCUMENTARY ACCEPTANCE BILL. One accompanied by shipping documents, including bill of lading, which is surrendered to drawee upon his accepting the draft.

DOCUMENTARY PAYMENT BILL. One accompanied by shipping documents, including bill of lading, which is surrendered to the drawee only upon his paying the draft.

DOLLAR EXCHANGE. Exchange on an American center, particularly New York.

DOLLAR EXPORT CREDIT. One issued by an American bank to finance merchandise exports.

DOLLAR IMPORT CREDIT. One issued by an American bank to finance merchandise imports.

DOMICILED BILLS. Draft drawn upon one country but made payable in another.

DRAWEE. The party on whom a bill of exchange or draft is drawn.

DRAWER. One who draws a bill of exchange or draft.

EXCHANGE DISCOUNT. The amount by which the prevailing rate of exchange is below par: also the amount by which the price of one type of exchange is below its parity rate as regards the price of another type.

EXCHANGE PREMIUM. The amount by which the current rate of exchange exceeds par; also the amount by which the price of a particular type of exchange exceeds its parity rate as regards the price of another type.

FINANCE BILLS. Long bankers' bills secured by stock and bond collateral.

FIRST OF EXCHANGE. Original copy of bill of exchange remitted by the first departing steamer.

FOREIGN EXCHANGE BANKER. A banker who deals in foreign exchange and carries balances abroad for the purpose.

FRANC EXCHANGE. Exchange on a French center, particularly Paris.

FUTURE EXCHANGE. Contract for an exchange of funds between two countries at a fixed rate at a specified future time.

GOLD EXPORT POINT. Rate at which the purchase of a particular class of exchange is equivalent to exporting gold.

GOLD IMPORT POINT. Rate at which the sale of a particular class of exchange is equivalent to importing gold.

INDORSEMENT. Writing on back of bill of exchange, draft, or promissory note, whereby the instrument is assigned and transferred to another party, with or without guarantee of its payment.

IRREVOCABLE CREDIT. (See "Confirmed Acceptance Credit.")

LEGAL TENDER. Form of money which a creditor is legally bound to accept in full satisfaction of his claim. In United States, gold coin, silver dollars, and United States notes are by statute declared to be good and sufficient payment of debts.

LETTER OF CREDIT. Document issued by bank in connection with an acceptance credit it has granted, authorizing its recipient to draw bills upon the bank against merchandise shipments for the amount and in accordance with the conditions specified.

LONG EXCHANGE. Draft running for a stated period from the day it is accepted or drawn.

LONG SIGHT BILLS. Those running a designated period after their acceptance.

MARK EXCHANGE. Exchange on a German center.

ONE-NAME BILL. A draft, the drawer and drawee of which are affiliated concerns and, therefore, represent but a single financial responsibility.

PARITY. Equivalence of two different classes of exchange.

PARITY SPREAD. Difference between the quotations for two forms of exchange when at parity with each other.

PAR OF EXCHANGE. Rate at which foreign and domestic funds exchange for each other on equal terms, and which is usually denoted by the number of domestic monetary units, or the fraction of the domestic unit that is equivalent to the foreign unit, or vice versa.

PAYEE. One who is paid or is to be paid a certain sum of money.

"PIG ON PORK." One-name bill.

PRICE OF EXCHANGE. Same as rate of exchange.

PRIME BILL. One selling at the highest prevailing price by reason of the high credit standing of both drawer and drawee.

PROMPT EXCHANGE. Same as spot exchange. (See "Spot Exchange.")

RATE OF EXCHANGE. The ratio in which domestic funds exchange for foreign funds.

RATE TO ARRIVE. (See "Discount Rate 'to Arrive.' ")

READY EXCHANGE. Same as spot exchange. (See "Spot Exchange.")

"RETIREMENT RATE" OF DISCOUNT. Rate at which non-discountable sterling bills may be retired in London before maturity.

REVOCABLE ACCEPTANCE CREDIT. One in which the issuing bank reserves the right to cancel at any time any unused portion.

SECOND OF EXCHANGE. Duplicate copy of bill of exchange remitted by second steamer.

SHIPPING DOCUMENTS. Papers attached to commercial bills of exchange, including bill of lading, insurance certificate, invoice, and other papers.

SIGHT EXCHANGE. Same as demand exchange. (See "Demand Exchange.")

SPECIE POINTS. Gold export and import points.

SPOT EXCHANGE. Immediate remittance.

SPOT GOLD. Gold available for immediate delivery.

STERLING EXCHANGE. Exchange on British centers, particularly London.

STERLING EXPORT CREDIT. Credit issued by London banks to finance merchandise exports from this country.

STERLING IMPORT CREDIT. Credit issued by London banks to finance imports into this country.

"SWAPPING." Exchanging one form of remittance for another on the same city, as sterling cable transfers for sterling demand; or exchanging funds between two foreign cities, as sterling for franc exchange.

TENOR OF BILL. Period the bill runs.

THREE-CORNERED EXCHANGE. Same as triangular exchange. (See "Triangular Exchange.")

"TO ARRIVE." (See "Discount Rate 'to Arrive.'")

TRADE ACCEPTANCE. A bill of exchange or draft drawn by the seller of goods upon the buyer and accepted by the latter.

TRIANGULAR ARBITRAGE. Arbitraging between three centers.

TRIANGULAR EXCHANGE. Remittance from one center to another by way of a third.

TRIANGULAR PARITY. State of equilibrium in the rates of exchange between three cities, so that remittance from one center to another, by way of the third, costs precisely as much as when made directly.

TRUST RECEIPT. Legal instrument by which a bank which has accepted bills to finance imports, exercises full control over the goods upon their arrival in this country, or the money proceeds in case of their sale, until it is reimbursed for the amount of the bills.

TWO-NAME BILL. Draft, the drawer and drawee of which are mutually independent parties and, therefore, represent separate financial entities.

UNCONFIRMED CREDIT. Same as revocable credit. (See "Revocable Acceptance Credit.")

USANCE OF BILL. Period the bill runs. (See "Tenor of Bill.")

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